40 Marks — Model (1)

1 Choose the correct answer: (7)

a) $Z^+ \cup \{0\} =$ ....

- Z^-
- N
- Z
- Z^+

b) If $2x = -4$, then $x \in$ ....

- N
- $\varnothing$
- Z^+
- Z^-

c) The circumference of the circle = ... $\times \pi$

- r
- 2r
- r^2
- r + 2

d) A die is tossed once, then the probability of getting the number 3 = ...

- 0
- $\frac{1}{6}$
- $\frac{3}{6}$
- 1

e) The number which satisfies the inequality $x > -3$ is ....

- −2
- −3
- −4
- −5

f) The total surface area of a cube is 150 cm^2, then its side length is .... cm.

- 25
- 4
- 5
- 6

g) $2^5 \times 2^2 =$ ....

- 2^7
- 4^7
- 1
- 2^3

2 Complete each of the following: (6)

a) $\frac{2^3 \times 2^5}{2^2} =$ ....

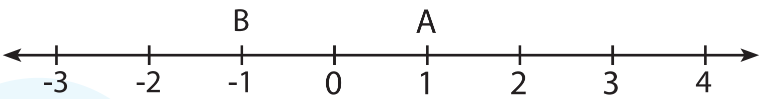
b) The set of counting numbers C .... N

c) The probability of the impossible event = ...

d) If $x - 7 = 9$, $x \in N$, then $x =$ ....

e The perimeter of the base of a cuboid is 10 cm and its height is 4 cm. Then its lateral area = ... cm^2.

f In the following figure the distance between points A and B = ... units.



3 Choose the correct answer:

7

a $\left|\frac{6-7}{2}\right|$ .... Z

- $\in$
- $\notin$
- $\subset$
- $\not\subset$

b If A (2 , 3) and B (6 , 3), then the length of $\overline{AB}$ is .... length units.

- 2
- 3
- 4
- 5

c $(-1)^7 + (-1)^6 =$ ....

- 0
- −1
- 1
- −2

d {0} .... N

- $\in$
- $\notin$
- $\subset$
- $\not\subset$

e When tossing a die once and observing the upper face, then the probability of getting a number greater than 6 = ...

- $\varnothing$
- 0
- $\frac{1}{6}$
- $\frac{1}{3}$

f The sum of the measures of the accumulative angles at the center of the circle = ...

- 0°
- 180°
- 90°
- 360°

g If the set of substitution is {1 , 2 , 3 , 4}, then the solution set of the equation $x + 6 = 10$ is ....

- {1}
- {2}
- {3}
- {4}

4 Answer the following:

20

a Find the solution set in Z of the equation: $2x + 11 = 3$

....

....

....

b Use the distribution property to find the result of:

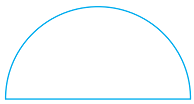
$37 \times 17 + 37 \times (-17)$

....

....

....

c Find the area of the opposite figure ($\pi \simeq 3.14$)

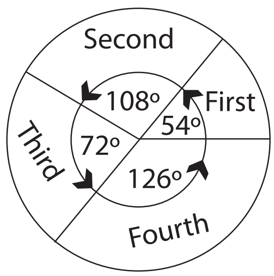


r = 10 cm

....

d The following table shows the percentages of production of chickens in four farms within a month. Represent these data by circular sectors:

First	Second	Third	Fourth
15%	30%	20%	35%



....

....

....

....

40 Marks

Model (2)

1 Choose the correct answer:

7

a $Z^+ \cap Z^- =$ ....

- Z^+
- Z^-
- $\varnothing$
- N

b The greatest negative integer is ....

- 0
- −1
- 1
- -100

c If $7x = -14$, then $x =$ ....

- 7
- −2
- −7
- −21

d The degree of the equation $x^3 - 4x^2 = 12$ is ....

- 3rd
- 2nd
- 1st
- 4th

e The image of the point (−3 , 5) by translation ($x + 3$, y − 5) is ....

- (6 , 10)
- (0 , 5)
- (0 , 0)
- (3 , 0)

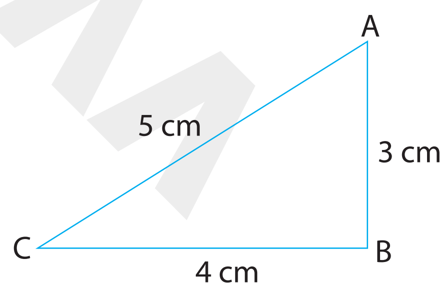
f When tossing a coin once, the probability of getting a head is ....

- $\frac{1}{2}$
- 1
- $\frac{3}{4}$
- $\frac{1}{4}$

g In the opposite figure:

The area of Δ ABC = ... cm^2

- 12
- 6
- 10
- 7.5



2 Complete each of the following:

6

a The image of the point (-2 , -7) by translation ($x - 3$, y + 4) is ....

b | − 24 | ÷ (−8) = ...

c A cuboid, its dimensions are 3 cm, 4 cm and 5 cm, then its lateral area = ... cm^2.

d If 2y = 8, then y + 3 = ...

e The smallest non-negative integer number is ....

f If the probability of selecting a successful student in a classroom is 0.7, then the probability of selecting a failed student is ....

3 Choose the correct answer:

7

a $Z^+ - Z^- =$ ....

- Z
- N
- Ø
- Z^+

b If $x = -1$, $y = 2$, then the value of $x + y =$ ....

- 2
- 3
- 1
- −1

c All the following numbers satisfy the inequality $x > -3$ except ....

- 0
- −1
- −2
- −4

d The multiplicative identity in **Z** is ....

- zero
- 1
- −1
- 2

e The area of a circle with radius 10 cm = ... cm^2. ($\pi \simeq 3.14$)

- 31.4
- 314
- 3.14
- .0314

f If A is an event of the sample space of a random experiment, then: $0 \le P(A) \le$ ....

- 0
- 1
- −1
- 2

g The image of the point (4 , 6) by translation $(x + 1 , y - 3)$ is ....

- (5 , 7)
- (6 , 5)
- (2 , 5)
- (5 , 3)

4 Answer the following:

20

a Find the result:

$$\frac{2^3 \times (-2)^4}{2^5}$$

....

b Find the solution set of the following inequality in Z :

$2x + 1 \geq 5$

Answer:

....

....

....

....

c A box in the shape of a cuboid, its length is 10 cm, its width is 5 cm and its height is 8 cm. **Find** its lateral area and its total area.

Answer:

....

....

....

d The following table shows the percentages of the favorite sports in a school. Represent these data by the circular sectors.

Football	Basketball	Handball
40%	35%	25%

Answer:

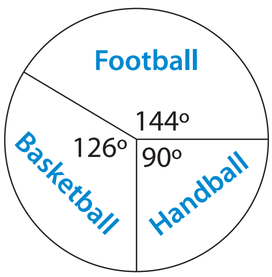
....

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....



Model (3)

40 Marks

1 Choose the correct answer:

7

a -7 .... -2

- $>$
- $<$
- $=$
- $\leq$

b If $x + 2 = |-5|$, then $x =$ ....

- -7
- 7
- 3
- -3

c $(-2)^3 >$ ....

- $(-2)^2$
- 3^2
- $(-3)^3$
- 3^3

d The smallest positive integer is ....

- 0
- 1
- -1
- 2

e $Z - N =$ ....

- Z^+
- $\{0\}$
- Z^-
- 0

f If P (A) = 1, then A is called .... event.

- a possible
- an impossible
- a certain
- otherwise

g If the edge length of a cube is 4 cm, then its lateral area is .... cm^2

- 96
- 64
- 16
- 24

2 Complete each of the following:

6

a $9(4 + (-3)) =$ .... $\times$ .... $+$ .... $\times$ .... $=$ ....

b $-|-3| + 4 + (-8) =$ ....

c If $x \in \{2, -2\} \cap \{4, -2\}$, then $x =$ ....

d If the probability of occurrence of the event A is $\frac{5}{7}$, then the probability of non-occurrence of the event A = ...

e The image of the point (–3 , 4) by translation (0 , –4) is ....

f The height of a cuboid whose lateral area is 120 cm^2 and its base dimensions are 4 cm and 6 cm = ... cm

7

3 Choose the correct answer:

a If $2x = |-8|$, then $x =$ ....

- -8
- 8
- 4
- -4

b $(3)^8 \div (-3)^5 =$ ....

- $(3)^3$
- $(-3)^{13}$
- 3
- $(-3)^3$

c If $\left|\frac{x}{3}\right| = 4$, then $x =$ ....

- ±12
- –12
- 12
- otherwise

d The solution set of inequality $2 \le x < 3$, where $x \in N$ is ....

- {5}
- {2}
- {2 , 1.5}
- {2 , 3})

e A cube of edge length 6 cm, its total area = ... cm^2.

- 36
- 72
- 144
- 216

f If a circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ...

- 120°
- 90°
- 60°
- 180°

g The probability of getting a number divisible by 3 when rolling a fair die once is ....

- $\frac{1}{2}$
- $\frac{1}{3}$
- $\frac{1}{6}$
- $\frac{2}{3}$

4 Answer the following questions:

20

a Find the solution set of the following inequality:

$3x - 2 < 7 \qquad x \in N$

Answer:

....

....

....

....

b Use the properties of addition in Z to find the result of:

$(-116) + 190 + 116$ (State the property used in each step.)

Answer:

....

....

....

....

c In the coordinate plane, represent the points A (0 , 1), B (2 , 1) and C (2 , 4), then **find**:

1. The length of $\overline{BC}$.
2. The image of Δ ABC by translation (0 , 2)

Answer:

1 ....

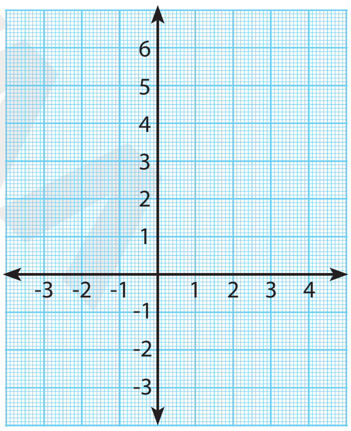
2 ....

....

....

....

....



c A box contains 8 white balls, and 12 red balls where all balls are identical.

If a ball is drawn randomly, calculate the probability of the following:

1. Drawing a white ball.
2. Drawing a red ball.

Answer:

1 ....

2 ....

Model (1)

40 Marks

1 Choose the correct answer:

7

a $Z^+ \cup \{0\} = ...$

- Z^-
- N
- Z
- Z^+

b If $2x = -4$, then $x \in ....$

- N
- $\varnothing$
- Z^+
- Z^-

c The circumference of the circle = ... $\times \pi$

- r
- 2r
- r^2
- r + 2

d A die is tossed once, then the probability of getting the number 3 = ...

- 0
- $\frac{1}{6}$
- $\frac{3}{6}$
- 1

e The number which satisfies the inequality $x > -3$ is ....

- -2
- -3
- -4
- -5

f The total surface area of a cube is 150 cm^2, then its side length is .... cm.

- 25
- 4
- 5
- 6

g $2^5 \times 2^2 = ...$

- 2^7
- 4^7
- 1
- 2^3

2 Complete each of the following:

6

a $\frac{2^3 \times 2^5}{2^2} = \frac{2^8}{2^2} = 2^6$

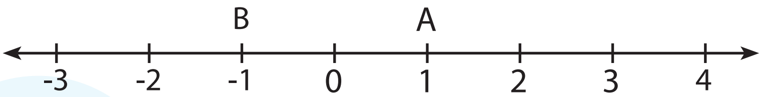
b The set of counting numbers C $\subseteq$ N

c The probability of the impossible event = 0

d If $x - 7 = 9$, $x \in N$, then $x = 16$

e The perimeter of the base of a cuboid is 10 cm and its height is 4 cm. Then its lateral area = 40 cm^2.

f In the following figure the distance between points A and B = 2 units.



3 Choose the correct answer:

7

a $\left|\frac{6-7}{2}\right|$ .... Z

- $\in$
- $\notin$
- $\subset$
- $\not\subset$

b If A (2 , 3) and B (6 , 3), then the length of $\overline{AB}$ is .... length units.

- 2
- 3
- 4
- 5

c $(-1)^7 + (-1)^6 =$ ....

- 0
- −1
- 1
- −2

d {0} .... N

- $\in$
- $\notin$
- $\subset$
- $\not\subset$

e When tossing a die once and observing the upper face, then the probability of getting a number greater than 6 = ...

- $\varnothing$
- 0
- $\frac{1}{6}$
- $\frac{1}{3}$

f The sum of the measures of the accumulative angles at the center of the circle = ...

- 0°
- 180°
- 90°
- 360°

g If the set of substitution is {1 , 2 , 3 , 4}, then the solution set of the equation $x + 6 = 10$ is ....

- {1}
- {2}
- {3}
- {4}

4 Answer the following:

20

a Find the solution set in Z of the equation: $2x + 11 = 3$

$2x + 11 - 11 = 3 - 11$ (the "11 − 11" is struck through)

$2x = -8$

$x = -\frac{8}{2}$

$x = -4$

S.S. = {-4}

b Use the distribution property to find the result of:

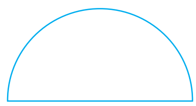
$37 \times 17 + 37 \times (-17)$

$= 37\,(17 + (-17))$

$= 37 \times 0$

$= 0$

c Find the area of the opposite figure ($\pi \simeq 3.14$)

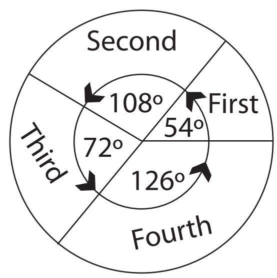


r = 10 cm

The area of the figure $= \frac{1}{2} \times 3.14 \times (10)^2 = 157\ \text{cm}^2$

d The following table shows the percentages of production of chickens in four farms within a month. Represent these data by circular sectors:

First	Second	Third	Fourth
15%	30%	20%	35%



The measure angle of the first sector is $\frac{15}{100} \times 360° = 54°$

The measure angle of the second sector is $\frac{30}{100} \times 360° = 108°$

The measure angle of the third sector is $\frac{20}{100} \times 360° = 72°$

The measure angle of the fourth sector is $\frac{35}{100} \times 360° = 126°$

40 Marks

Model (2)

1 Choose the correct answer:

7

a $Z^+ \cap Z^- =$ ....

- Z^+
- Z^-
- $\varnothing$
- N

b The greatest negative integer is ....

- 0
- −1
- 1
- -100

c If $7x = -14$, then $x =$ ....

- 7
- −2
- −7
- −21

d The degree of the equation $x^3 - 4x^2 = 12$ is ....

- 3rd
- 2nd
- 1st
- 4th

e The image of the point (−3 , 5) by translation ($x + 3$, y − 5) is ....

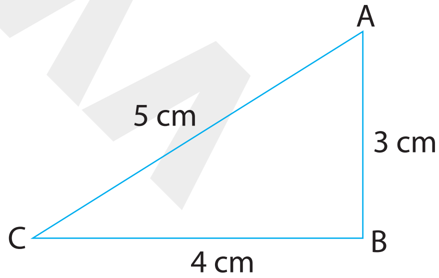
- (6 , 10)
- (0 , 5)
- (0 , 0)
- (3 , 0)

f When tossing a coin once, the probability of getting a head is ....

- $\frac{1}{2}$
- 1
- $\frac{3}{4}$
- $\frac{1}{4}$

g In the opposite figure:

The area of Δ ABC = ... cm^2



- 12
- 6
- 10
- 7.5

2 Complete each of the following:

6

a The image of the point (-2 , -7) by translation ($x - 3$, y + 4) is (−5 , −3) .

b | − 24 | ÷ (−8) = −3

c A cuboid, its dimensions are 3 cm, 4 cm and 5 cm, then its lateral area = 70 cm^2.

d If 2y = 8, then y + 3 = 7

e The smallest non-negative integer number is 0

f If the probability of selecting a successful student in a classroom is 0.7, then the probability of selecting a failed student is 0.3 .

3 Choose the correct answer:

7

a $Z^+ - Z^- =$ ....

- Z
- N
- Ø
- Z^+

b If $x = -1$, y = 2, then the value of $x + y =$ ....

- 2
- 3
- 1
- −1

c All the following numbers satisfy the inequality $x > -3$ except ....

- 0
- −1
- −2
- −4

d The multiplicative identity in **Z** is ....

- zero
- 1
- −1
- 2

e The area of a circle with radius 10 cm = ... cm^2. ($\pi \simeq 3.14$)

- 31.4
- 314
- 3.14
- .0314

f If A is an event of the sample space of a random experiment, then: $0 \le P(A) \le$ ....

- 0
- 1
- −1
- 2

g The image of the point (4 , 6) by translation $(x + 1 , y - 3)$ is ....

- (5 , 7)
- (6 , 5)
- (2 , 5)
- (5 , 3)

4 Answer the following:

20

a Find the result:

$\frac{2^3 \times (-2)^4}{2^5}$

$= \frac{2^3 \times 2^4}{2^5} = \frac{2^7}{2^5} = 2^2 = 4$

b Find the solution set of the following inequality in Z :

$2x + 1 \geq 5$

Answer: $2x + 1 \geq 5$

$2x + 1 - 1 \geq 5 - 1$

$2x \geq 4$

$x \geq 2$ S.S = { 2, 3, 4, …}

c A box in the shape of a cuboid, its length is 10 cm, its width is 5 cm and its height is 8 cm. **Find** its lateral area and its total area.

Answer:

The lateral area = 2 (L + W) × h = 2 (10 + 5) × 8 = 30 × 8 = 240 cm^2

The area of the two bases = 2 × L × W = 2 × 10 × 5 = 100 cm^2

The total area = The lateral surface area + the area of two bases = 240 + 100 = 340 cm^2

d The following table shows the percentages of the favorite sports in a school. Represent these data by the circular sectors.

Football	Basketball	Handball
40%	35%	25%

Answer:

The measure of the central angle of football

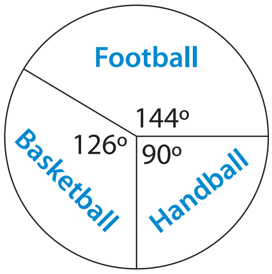
$= \frac{40}{100} \times 360° = 144°$

The measure of the central angle of basketball

$= \frac{35}{100} \times 360° = 126°$

The measure of the central angle of handball

$= \frac{25}{100} \times 360° = 90°$



40 Marks

Model (3)

1 Choose the correct answer:

7

a. -7 .... -2

- $>$
- $<$
- $=$
- $\leq$

b. If $x + 2 = |-5|$, then $x =$ ....

- -7
- 7
- 3
- -3

c. $(-2)^3 >$ ....

- $(-2)^2$
- 3^2
- $(-3)^3$
- 3^3

d. The smallest positive integer is ....

- 0
- 1
- -1
- 2

e. $Z - N =$ ....

- Z^+
- $\{0\}$
- Z^-
- 0

f. If P (A) = 1, then A is called .... event.

- a possible
- an impossible
- a certain
- otherwise

g. If the edge length of a cube is 4 cm, then its lateral area is .... cm^2

- 96
- 64
- 16
- 24

2 Complete each of the following:

6

a. $9(4 + (-3)) = 9 \times 4 + 9 \times -3 = 9$

b. $-|-3| + 4 + (-8) = -7$

c. If $x \in \{2, -2\} \cap \{4, -2\}$, then $x = -2$

d. If the probability of occurrence of the event A is $\frac{5}{7}$, then the probability of non-occurrence of the event A $= \frac{2}{7}$

e The image of the point (–3 , 4) by translation (0 , –4) is (–3 , 0)

f The height of a cuboid whose lateral area is 120 cm^2 and its base dimensions are 4 cm and 6 cm = 6 cm

3 Choose the correct answer:

7

a If $2x = |-8|$, then $x =$ ....

- -8
- 8
- 4
- -4

b $(3)^8 \div (-3)^5 =$ ....

- $(3)^3$
- $(-3)^{13}$
- 3
- $(-3)^3$

c If $\left|\frac{x}{3}\right| = 4$, then $x =$ ....

- ±12
- –12
- 12
- otherwise

d The solution set of inequality $2 \leq x < 3$, where $x \in$ N is ....

- {5}
- {2}
- {2 , 1.5}
- {2 , 3})

e A cube of edge length 6 cm, its total area = ... cm^2.

- 36
- 72
- 144
- 216

f If a circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ...

- 120°
- 90°
- 60°
- 180°

g The probability of getting a number divisible by 3 when rolling a fair die once is ....

- $\frac{1}{2}$
- $\frac{1}{3}$
- $\frac{1}{6}$
- $\frac{2}{3}$

4 Answer the following questions:

20

a Find the solution set of the following inequality:

$3x - 2 < 7 \qquad x \in N$

Answer:

$3x - 2 + 2 < 7 + 2$

$3x < 9$

$x < 3$

S.S. = {2 , 1 , 0}

b Use the properties of addition in Z to find the result of:

(–116) + 190 + 116 (State the property used in each step.)

Answer:

–116 + 116 + 190 (commutative property)

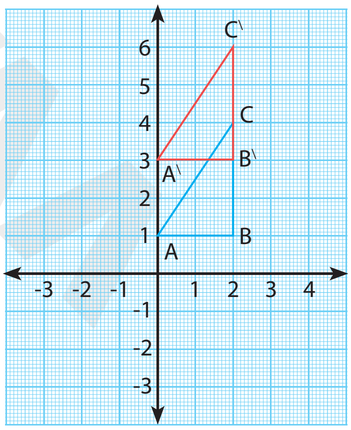
= [-116 + 116] + 190 (associative and additive inverse)

= 0 + 190 (the additive neutral)

= 190 (closure property)

c In the coordinate plane, represent the points A (0 , 1), B (2 , 1) and C (2 , 4), then **find**:

1. The length of $\overline{BC}$.
2. The image of Δ ABC by translation (0 , 2)



Answer:

1. The length of $\overline{BC}$ = 3 units length
2. The image of Δ ABC by translation (0 , 2) is A\ B\ C\

Such that A(0 , 1) $\xrightarrow{(0,2)}$ A\ (0 , 3)

B(2 , 1) $\xrightarrow{(0,2)}$ B\ (2 , 3)

C(2 , 4) $\xrightarrow{(0,2)}$ C\ (2 , 6)

c A box contains 8 white balls, and 12 red balls where all balls are identical.

If a ball is drawn randomly, calculate the probability of the following:

1. Drawing a white ball.
2. Drawing a red ball.

Answer:

1. The probability of drawing a white ball = $\frac{8}{20} = \frac{2}{5}$
2. The probability of drawing a red ball= $\frac{12}{20} = \frac{3}{5}$

Model Tests from the School Book

Model Test 1

1 Choose the correct answer:

1) $(-1)^8 + (-1)^9 =$ .... (0 or –1 or 1 or –2)

2) The image of the point (–3,4) by translation $(x , y - 4)$ is ....
((– 3,0) or (–7,4) or (–3,8) or (–1,4))

3) {0} .... ℕ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

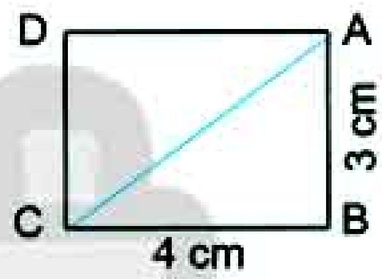
4) When tossing a die once and observing the upper face, then the probability of getting a number greater than 6 = ... ($\varnothing$ or 0 or $\frac{1}{6}$ or $\frac{1}{3}$)

2 Complete the following:

1) $\left|\frac{5-11}{3}\right|$ .... ℤ by using ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) If $x + 6 = 2$ where $x \in \mathbb{Z}$, then $x =$ ....

3) In the opposite figure ABCD is a rectangle, then the area of Δ ABC = ... cm².



4) A box contains 5 white balls, 3 blue balls and 8 red balls. All of the balls are identical. If a ball is chosen randomly when you close eyes, then the probability that the chosen ball is red = ...

3

a) Find the result: $(4 \times 3^2) \div 3^2 - (7 \times 3)$ ....

b) Find the solution set of the inequality: $x - 2 \geq 3$ where $x \in \mathbb{Z}$ ....

4

a) A cuboid box with a square base of side length 10 cm and its height is 7 cm. Find the lateral surface area of the box.

b) The circumference of a circle is 88 cm, find its area.

5

a) Find the solution set of the equation $3x + 9 = 3$ where $x \in \mathbb{Z}$.

b) The following table shows the percentage of the production of a factory of house electric sets.

Types of the sets	Washing machine	Oven	Heater	Mixer
Percentage of production	30%	40%	15%	15%

Represent these data using the circular sectors.

Model Test 2

1 Choose the correct answer:

1) If $2x = 6$, then $x \in$ .... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

2) The circumference of the circle = ... $\times \pi$ (r or 2r or r^2 or r+2)

3) A die is tossed once, then the probability of getting the number 5 = ... (0 or $\frac{1}{6}$ or $\frac{5}{6}$ or 1)

4) The number which satisfies the inequality $x > -2$ is .... (–1 or –2 or –3 or –4)

2 Complete the following:

1) $\frac{2^3 \times 2^5}{2^2}$ = ...

2) The set of the counting numbers (⊂) .... $\mathbb{N}$

3) The total surface area of a cube is 150 cm^2, then its side length is .... cm.

4) The result of a mathematics test of October for 6th grade in a school is recorded in the following table:

Excellent	Very good	Good	Weak
8	18	16	6

Then, the probability that a student obtains good = ...

3

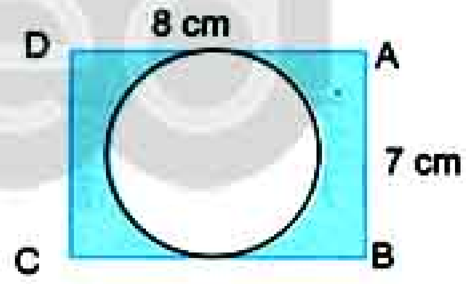
1) Find the value of (6 × –5) – ((2 × 3) ÷ 3)

2) Find the solution set of the inequality $x - 2 \geq 3$ where $x \in \mathbb{Z}$, then represent the solution on the number line.

4

a) Find the solution set of the equation $2x + 9 = 5$ where, $x \in \mathbb{Z}$.

b) In the opposite figure ABCD is a rectangle, its length is 8 cm and its width is 7 cm. Calculate the area of the shaded part.



5

a) On the coordinate plane, determine the following points A (2,3), B (4,3) and C (4,7) then find:

1) The length of $\overline{BC}$ = ... length units.

2) The image of Δ ABC by translation (0 , –4).

b) The following table shows the percentage of a number of students who participated in school activities.

Activity	Cultural	Sports	Social	Arts
Percentage of students	5%	45%	15%	35%

Represent these previous data by the circular sectors.

Model Test 3

(for students with special needs)

1 Complete the following:

1) $|3|$ = ...

2) The probability of the impossible event = ...

3) If $x + 2 = 3$, $x \in \mathbb{N}$, then x = ...

4) The perimeter of the base of a cuboid is 10 cm, its height is 4 cm. Then its lateral area = ... cm^2.

---

2 Choose the correct answer:

1) $2^5 \times 2^2$ = ... (2^7 or 4^7 or 1)

2) The surface area of a circle = $\pi \times$ .... (r or r^2 or 2r)

3) $\mathbb{Z}^+ \cup \{0\}$ = ... ($\mathbb{Z}^-$ or $\mathbb{N}$ or $\mathbb{Z}$)

4) When tossing a die once, then probability of getting an odd number = ... ($\frac{1}{6}$ or $\frac{1}{3}$ or $\frac{1}{2}$)

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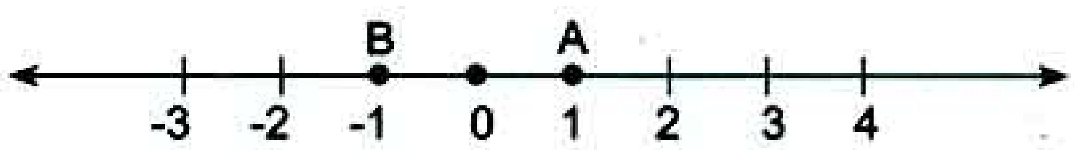
3 Put (✓) true or (✗) false:

1) $|-5| + 5 = 10$ ( )

2) If $3x = 9$, then $x = -3$ ( )

3) The probability of the sure event = zero. ( )

4) In the following figure the distance between points A and B = 2 units. ( )



4 Join from column (A) to column (B):

	A	B
1	The sum of the measures of the angles of the sectors about the centre of the circle = ...	$\in$
2	2 .... $\mathbb{Z}^+$	360°
3	The solution set of the inequality $x + 2 < 5$, $x \in \mathbb{N}$, is	(4 , 4)
4	The image of the point (3 , 2) by translation (1 , 2) is	{0 , 1 , 2}

5 Complete the following:

a) The length of the edges of a cube is 4 cm. **Calculate its total area and lateral area:**

The total area = 6 × ....

The lateral area = 4 × ....

b) **Find the result:** $\frac{2^3 \times (-2)^4}{2^5} = \frac{2^{\cdots + \cdots}}{2^5} = 2^{\cdots} =$ ....

24 Examinations from Different Governorates 2018/2019

(Note: Show your steps at the 3rd question in each exam.)

1 Cairo - EL-Sahel Educational Zone

1 Choose the correct answer:

1) $\mathbb{Z}^- \cap \mathbb{N} =$ .... ($\mathbb{Z}$ or $\mathbb{N}$ or $\mathbb{Z}^-$ or $\varnothing$)

2) The additive inverse of $(-3)^2$ is .... ($(3)^2$ or $(-2)^3$ or $-(3)^2$ or $\frac{1}{9}$)

3) The equation $x^2 + 1 = 3$ is of the .... degree. (first or second or third or fourth)

4) If a fair die is thrown once, then the probability of getting the number 5 equals ....
($\frac{5}{6}$ or Zero or $\frac{1}{6}$ or 1)

5) If a = 2 , b = – 4, then 3 ab = ... (–10 or –24 or 2 or –12)

6) If A (2 , 3) and B (6 , 3), then the length of $\overline{AB}$ is .... length units. (2 or 3 or 4 or 5)

7) A circle of diameter length 10 cm, its area = ... π cm^2. (100 or 50 or 25 or 5)

8) If $x = -2$, y = |–3|, then x + y = ... (–5 or 1 or 5 or 6)

9) The image of the point .... by translation (x – 3 , y + 4) is (–5 , –3).
((–2 , –7) or (–2 , 7) or (–8 , 7) or (–8 , 15))

10) $2^3 \times 2^2 =$ .... (4^6 or 4^5 or 2^6 or 2^5)

11) If the probability of success of a student is 0.8, then the probability of his failure is ....
(80% or 0.4 or 1 or 0.2)

12) If the set of substitution is {1 , 2 , 3 , 4}, then the solution set of the equation
$x + 6 = 10$ is .... ({1} or {2} or {3} or {4})

2 Complete each of the following:

13) A cube, the area of its face = 9 cm^2, then its total surface area = ... cm^2

14) $\mathbb{Z} - \mathbb{Z}^+ =$ ....

15) The image of the point (–2 , 5) by translation (1 , –3) is ....

16) If $2x = 6$ then $6x =$ ....

17) The sum of measures of the angles of the sectors around the centre of the circle = ... °

18) If the perimeter of the base of a cuboid is 10 cm, its height is 5 cm, then its lateral area = ... cm^2.

19) If $-x > 3$, then $x <$ ....

20) The total area of a cuboid is 132 cm^2 and its lateral area is 112 cm^2, then the area of its base is .... cm^2.

3 Answer the following questions:

21) Find the solution set of the equation $3x - 7 = 11$, where $x \in \mathbb{Z}$.

22) A circle of diameter length 14 cm is divided into 7 equal circular sectors, calculate the surface area of one sector where $\left(\pi = \frac{22}{7}\right)$.

23) Find the solution set of the inequality $x - 2 \leq 3$ where $x \in \mathbb{N}$

24) If the perimeter of the base of a cube is 28 cm:

a) Calculate its lateral area.

b) Calculate its total surface area.

25) The following table shows the percentages of a number of students participating in the school activities.

Activities	Arts	Sports	Computer
Percentages	25%	40%	35%

Represent these data by circular sectors (pie chart).

2 Cairo - Heliopolis Directorate - St.Joseph's School

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{Z}^- =$ .... ($\mathbb{Z}^-$ or $\mathbb{Z}^+$ or $\{0\}$ or $\mathbb{N}$)

2) $2^3 + 1^3 =$ .... (3^3 or 3^6 or 3^2 or 3^9)

3) The image of the point (–3 , –3) by translation 3 units in the positive direction of y-axis is .... ((0 , 0) or (0 , –3) or (–3 , 0) or (–3 , 3))

4) The measure of a angle of the sector which represents third of the circle = ... ° (30 or 60 or 120 or 180)

5) The number that satisfies the inequality $x > -2$ is .... (–1 or –2 or –3 or –4)

6) If a < b, then –3a .... –3b (< or > or = or ≤)

7) When tossing a fair die once, then the probability of getting the number 3 is .... ($\frac{1}{2}$ or $\frac{1}{3}$ or $\frac{1}{6}$ or 1)

8) If $2x + |-3| = 1$, then $x =$ .... (2 or –1 or –4 or 8)

9) The lateral area of the cube of edge length 10 cm is .... cm^2. (40 or 400 or 600 or 1000)

10) The additive inverse of $(-1)^6$ is .... ($(1)^6$ or $(-1)^7$ or $(-1)^8$ or $(-1)^0$)

11) $|-4| + (-2)$ .... $\mathbb{N}$ (∈ or ∉ or ⊂ or ⊄)

12) The circumference of the circle = ... (πr or $2\pi r$ or πr^2 or $2\pi r^2$)

---

2 Complete the following:

13) The lateral area of the cuboid = the perimeter of base × ....

14) The greatest negative integer is ....

15) The probability of the impossible event = ...

16) $\frac{(-3)^7 \times (-3)^2}{(-3)^6} = (-3)^x$, then $x =$ ....

17) If A (–3 , 2) and B (–3 , – 4), then the length of $\overline{AB}$ = ... length unit(s).

18) 3 × (–5) = (–5) × 3 is called .... property

19) $\{x : x \in \mathbb{Z}, -2 < x \leq 1\}$ = ... in listing method.

20) The image of the point (0 , –2) by translation $(x - 3, y + 2)$ is ....

3 Answer the following questions:

21) Find the solution set in $\mathbb{Z}$ of the equation: $2x + 11 = 3$

....

....

22) Use the properties of addition and multiplication to find the result of:

$37 \times 17 + 37 \times (-17)$

....

....

23) A carpet in the shape of a circle of radius length 3.5 m. If the price of one metre square of this carpet is 100 pounds, then find the price of the whole carpet. $\left(\pi \simeq \frac{22}{7}\right)$

....

....

24) Find the total area of a cuboid box of dimensions 3 cm, 2 cm and 6 cm.

....

....

25) The following table shows the percentages of a number of students participating in some favourite school activities:

Activities	Sports	Reading	Music
Percentages	25%	35%	40%

Represent these data by a pie chart.

3 Cairo - El-Sayeda Aisha - Rod El-Farag Educational Zone

1 Choose the correct answer:

1) –5 .... $\mathbb{Z}^+$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) If $2x = 8$, then $x + 1 =$ .... (4 or 2 or 16 or 5)

3) A circle of diameter 8 cm, its area = ... π cm^2 (4 or 8 or 16 or 64)

4) If a = –3 , b = 2, then $(a)^b =$ .... (–6 or 9 or –9 or –8)

5) $(-1)^{13} + (-1)^{10} =$ .... (0 or 2 or 1 or –2)

6) The number that satisfies the inequality $x > -4$ is .... (–5 or –6 or – 4 or –3)

7) If the area of one face of a cube is 9 cm^2, then its total area = ... cm^2.
(12 or 27 or 36 or 54)

8) The probability of the impossible event is .... (0 or 1 or –1 or 2)

9) If A (2 , 7), B (2 , 3), then the length of $\overline{AB}$ = ... units. (3 or 4 or 5 or 7)

10) $9^7 + 9^5 =$ .... (9^{14} or 9^2 or 9^{zero} or 9^{35})

11) The equation $3x^3 - 6 = 14$ is of the .... degree. (first or second or third or fourth)

12) The measure of the angle of the circular sector which represents $\frac{1}{4}$ from the area of a circle is .... (30° or 60° or 90° or 45°)

---

2 Complete the following:

13) The image of the point (–1 , 4) by translation (x + 1, y –3) is ....

14) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ....

15) A fair die is thrown once, then the probability of getting the number 5 is ....

16) The lateral area of the cuboid = perimeter of base X ....

17) $\frac{(-2)^7 \times (-2)^5}{-2^{10}} =$ ....

18) The sum edge lengths of cube is 48 cm, then its lateral area = ... cm^2.

19) If $x = -2$, y = | 4 |, then xy = ...

20) The cuboid of lateral area 120 cm^2 and perimeter base 20 cm, its height = ... cm.

3 Answer the following questions:

21) Use the distributive property to find: $32 \times 117 - 32 \times 17$

....

....

22) Find the S.S. of the inequality $2x - 2 \geq 4$, where $x \in \mathbb{Z}$.

....

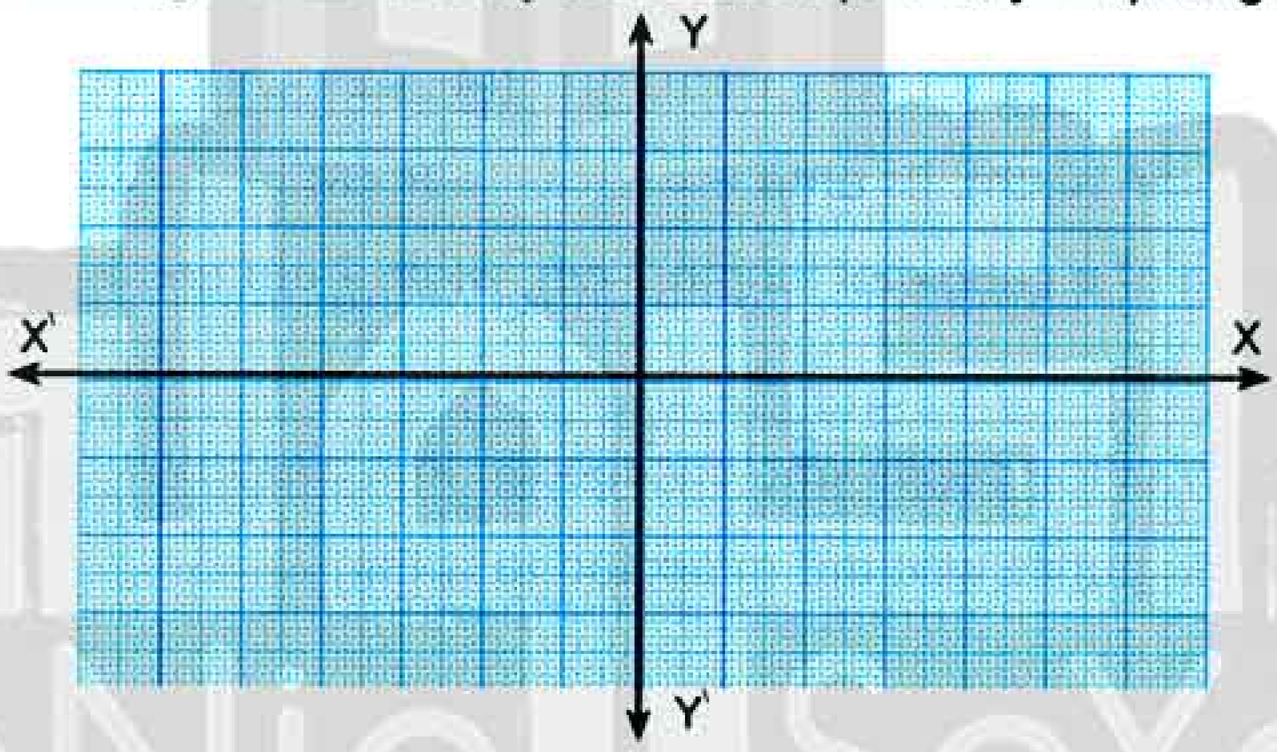
....

23) A cuboid box with a square base of side length 10 cm and its height is 6 cm. Find its lateral area and total area.

....

....

24) In the Cartesian coordinate plane locate the points A (1 , 1) , B (–3 , –1), C (0 , –2), then draw the image of Δ ABC by translation $(x + 5, y - 1)$ on graph.



25) From the following table:

Farm	1st	2nd	3rd	4th
Percentage of the production	40%	25%	20%	15%

Represent these data by a pie chart.

....

....

....

4 Cairo - Al-Zeitoun Educational Administration - Gomhoria Language School

1 Choose the correct answer:

1) $(-1)^3$ .... $(3)^{zero}$ (< or = or > or ≥)

2) $|-5| + 4$ .... $\mathbb{Z}^-$ (∈ or ∉ or ⊂ or ⊄)

3) The smallest non-negative number is .... (1 or 0 or –1 or –2)

4) $x + 1 = 7$ is of the .... degree (zero or 1^{st} or 2^{nd} or 3^{rd})

5) The solution set of the inequality $-2 \le x < -1$ is ....

({–2 , –1} or {–1} or {–2} or ∅)

6) The additive inverse of |–3| is .... (0 or 3 or –1 or –3)

7) $\frac{25-5}{4}$ .... $\mathbb{Z}$. (∈ or ∉ or ⊂ or ⊄)

8) The image of the point (4 , –2) by translation (x + 2 , y –1) is ....

((4 , –2) or (2 , –1) or (6 , –3) or (–2 , –1))

9) A circle of diameter 10 cm, its area = ... π cm^2. (25 or 100 or 3.14 or 31.4)

10) The lateral area of a cuboid of length 3 cm, width 2 cm and height 4 cm is .... cm^2 (20 or 24 or 40 or 52)

11) If the probability of the pupils who succeeded in a classroom is 0.7, then the probability of the pupils who are expected to fail is ....

(0.3 or 0.1 or 12 or 28)

12) P (∅) = ... (1 or 0 or $\frac{1}{2}$ or $\frac{5}{3}$)

2 Complete the following:

13) The solution set of inequality $x - 1 < 0$ in ℕ is ....

14) $\mathbb{Z}^+ - \mathbb{Z}^-$ = ...

15) A circle its circumference is 88 cm, then its radius length = ... cm. $(\pi \simeq \frac{22}{7})$

16) $\frac{2^2 \times 2^5}{2^3}$ = ...

17) A cube of volume 1000 cm^3, its side length is .... cm.

18) Having A (–2 , 1) and B (3 , 1), then the length of $\overline{AB}$ = ... length unit(s).

19) The probability of the certain event = ...

20) If the area of one face of a cube is 9 cm^2, then its total area = ...

3 Answer the following questions:

21) Use the distribution property to find: $3 \times (-2) + 3 \times 5$

....

....

....

22) Find the solution set in $\mathbb{N}$: $3x - 2 = -17$

....

....

....

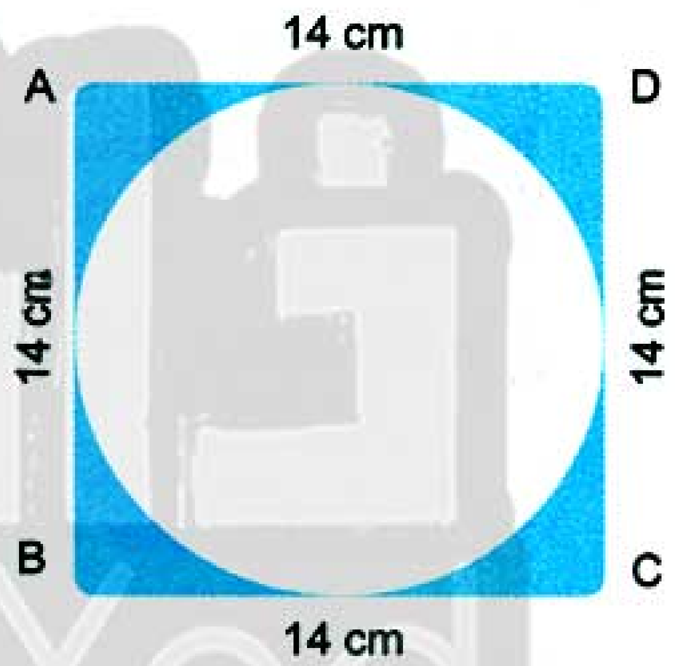
23) The sum of edge lengths of a cube is 144 cm. Find its lateral area and its total area.

....

....

....

24) Find the area of the shaded part: $\left(\pi \simeq \frac{22}{7}\right)$



....

....

....

....

....

....

25) The following table shows the number of students participating in school activities.

Activities	Cultural	Sports	Social	Arts
Percentages	25%	50%	15%	10%

Represent these data by a pie chart.

5 Cairo - El-Marg Educational Directorate - El-Shams Language School

1 Choose the correct answer:

1) When tossing a coin once, then the probability of getting a head is ....

(0 or 1 or 0.5)

2) If the area of one face of a cube is 9 cm^2, then its total surface area is .... cm^2

(36 or 54 or 81)

3) $\mathbb{Z}^+ \cap \mathbb{Z}^-$ = ... ($\mathbb{Z}$ or $\varnothing$ or $\mathbb{Z}^-$)

4) The measure of the central angle of the circular sector which represents $\frac{1}{12}$ from the area of the circle = ... (90° or 60° or 30°)

5) $(-1)^8 + (-1)^9 + (-1)^{zero}$ = ... (–1 or 1 or 0)

6) If a dice is tossed once, then the probability of getting a prime number = ...

($\frac{1}{3}$ or $\frac{1}{2}$ or 1)

7) If $4x = 24$, $x \in \mathbb{Z}$, then x = ... (12 or 24 or 6)

8) The multiplicative neutral element in $\mathbb{Z}$ is .... (0 or 1 or 2)

9) $|-5| + 3$ .... $\mathbb{Z}$ ($\in$ or $\subset$ or $\notin$)

10) The image of the point (–1 , 2) by translation (–2 , 3) is ....

((0 , 5) or (1 , 3) or (–3 , 5))

11) If the diameter length of a circle is 20 cm, then its area = ... cm^2. where (π = 3.14)

(314 or 3.14 or 0.314)

12) $5 \times |-4|$ = ... (20 or –20 or 9)

13) $5^7 \div 5^5$ = ... (5^{12} or 5^2 or 5^0)

14) $\varnothing$ .... {a , b} ($\in$ or $\subset$ or $\notin$)

2 Complete the following:

15) 3 × (–2) = (–2) × 3 is called .... property.

16) (–4) × [(4) + (–4)] = ...

17) If A (2 , 4) and B (2 , –1), then the length of $\overline{AB}$ = ... units.

18) If the sum of edge lengths of a cube is 96 cm, then its lateral area = ... cm^2.

19) If the equation: $x^2 - 3 = 6$ is of the .... degree.

20) If $x \in \{2 , -2\} \cap \{4 , -2\}$, then x = ...

21) $\frac{5^3 \times 5^4}{5^7}$ = ...

22) If the probability of the appearance of the event A is $\frac{5}{7}$, then the probability of the non-appearance of the event A = ...

3 *Answer the following questions:*

23) a) **Find** the solution set in $\mathbb{Z}$ of the equation: $2x+1 = -9$

....

....

b) **Find** the solution set in $\mathbb{Z}$ of the inequality: $3x - 2 \leq 7$

....

....

24) A cuboid its length is 6 cm, its width is 4 cm and its height is 8 cm. **Find** its lateral area and its total area.

....

....

25) The following table shows the percentages of the favourite sport for the pupils in one of the schools:

Favourite sports	Football	Handball	Basketball
Percentage	50%	30%	20%

Represent these data by circular sectors.

26) On the coordinate plane, **determine** the points A (2 , 2), B (1, 0), C(3 , 0) , D (4 , 2), then **find** its image by translation (x, y + 4) and **what** is the name of the shape ABCD?

6 Giza - 6th October Directorate - Sun Gate L.Schools

1 Choose the correct answer from those given:

1) The integer number which is included between –2 and 3 is .... (3 or –3 or –4 or –1)

2) $\frac{-5}{7}$ .... $\mathbb{Z}$ ($\notin$ or $\subset$ or $\not\subset$ or $\in$)

3) $(-1)^2 + 1 =$ .... (–2 or 0 or 1 or 2)

4) The image of the point (–3 , 4) by translation (0 , – 4) is ....
[(–3 , 0) or (–7 , 4) or (–3 , 8) or (–1 , 4)]

5) {Zero} $\subset$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\varnothing$ or $\mathbb{Z}$)

6) A cube of edge length 6 cm, its total area = ... cm^2 (36 or 72 or 144 or 216)

7) A die is thrown once, then the probability of getting the number 5 = ...
(0 or $\frac{1}{6}$ or $\frac{5}{6}$ or 1)

8) If the length of the radius of a circle is 10 cm, then its surface area equals .... cm^2. ($\pi \simeq 3.14$) (3.14 or 31.4 or 314 or 3140)

9) If $x - 1 = 2$, then $x =$ .... where $x \in \mathbb{N}$ (3 or 1 or –1 or –3)

10) $|-7| + 7 =$ .... (–14 or zero or 7 or 14)

11) If the total area of a cube is 600 cm^2, then its edge length = ... cm
(5 or 10 or 6 or 100)

12) The measure of the angle for the circular sector of half a circle is ....
(90° or 120° or 180° or 270°)

2 Complete each of the following:

13) The probability of the impossible event = ...

14) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ....

15) $32 \times 85 + 15 \times 32 =$ ....

16) If the length of the edge of a cube is 4 cm, then its total surface area equals .... cm^2.

17) The angle of a circular sector is called a central angle because its vertex is .... of the circle.

18) The solution set of the inequality: $x + 1 < 5$, $x \in \mathbb{N}$ is ....

19) If $x \subset \{2, -3\} \cap \{5, -3\}$, then x = ...

20) The lateral area of a cuboid = ...

3 *Answer the following questions:*

21) Find the result of each of the following:

a) $(-5) \times [7 + (-5)]$ **b)** $\frac{7^4 \times 7^5}{7^7}$

22) Find the solution set of the inequality: $2x - 3 < 1$ where $x \in \mathbb{N}$ and represent it on the number line.

23) Find the solution set, where $x \in \mathbb{Z}$: $x + 4 > 5$.

24) In the coordinate plane, represent the points A (0 , 1), B (2 , 1) and C (2 , 4), then find:

a) The length of $\overline{BC}$.

b) The image of Δ ABC by translation (0 , 2).

25) The following table shows the number of students participating in some activities:

Activities	Cultural	Sports	Social	Arts
Percentages	10%	40%	15%	35%

Represent these data by a pie graph.

7 Giza - Al-Haram Educational Area

1 Choose the correct answer:

1) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\varnothing$ or $\mathbb{N}$)

2) The greatest negative integer is .... (0 or –1 or 1 or 2)

3) If $7x = -14$, then $x =$ .... (7 or –2 or –7 or –21)

4) The degree of the equation $x^3 - 4x^2 = 12$ is .... (3rd or 2nd or 1st or 4th)

5) All the following numbers satisfy the inequality $x > -3$ except ....

(0 or –1 or –2 or –4)

6) The image of the point (–3 , 5) by translation (x + 3 , y – 5) is ....

((6 , 10) or (0 , 5) or (0 , 0) or (3 , 0))

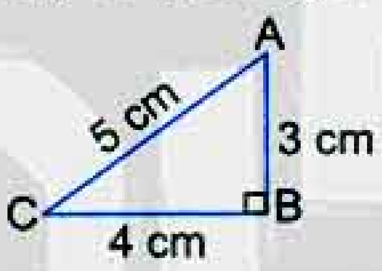
7) If $x = -1$, y = 2, then the value of x + y = ... (2 or 3 or 1 or –1)

8) $(-1)^8 + (-1)^9 =$ .... (1 or Zero or 2 or –2)

9) When tossing a coin the probability of getting a head is .... $\left(\frac{1}{2}\right.$ or 1 or $\frac{3}{4}$ or $\left.\frac{1}{4}\right)$

10) **In the opposite figure:**

Area of Δ ABC = ...cm² (12 or 6 or 10 or 7.5)



11) If a circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ...

(120° or 90° or 60° or 180°)

12) A cube its edge length is 3 cm, then its total area = ... cm². (54 or 36 or 27 or 9)

2 Complete the following:

13) If a = 3 , b = –2, then the value of: –3 ab = ...

14) If $x - 3 = 4$, then x = ...

15) If x = (3 , 2), y = (3 , – 4), then the length of $\overline{xy}$ = ... units.

16) A cuboid, its dimensions are 3 cm, 4 cm and 5 cm, then its lateral area = ... cm².

17) If 2y = 8, then y + 3 = ...

18) The probability of the impossible event = ...

19) A circle, its radius length is 7 cm and then its circumference = ... π cm.

20) The lateral area of the cube = area of one face × ....

3 Answer the following questions:

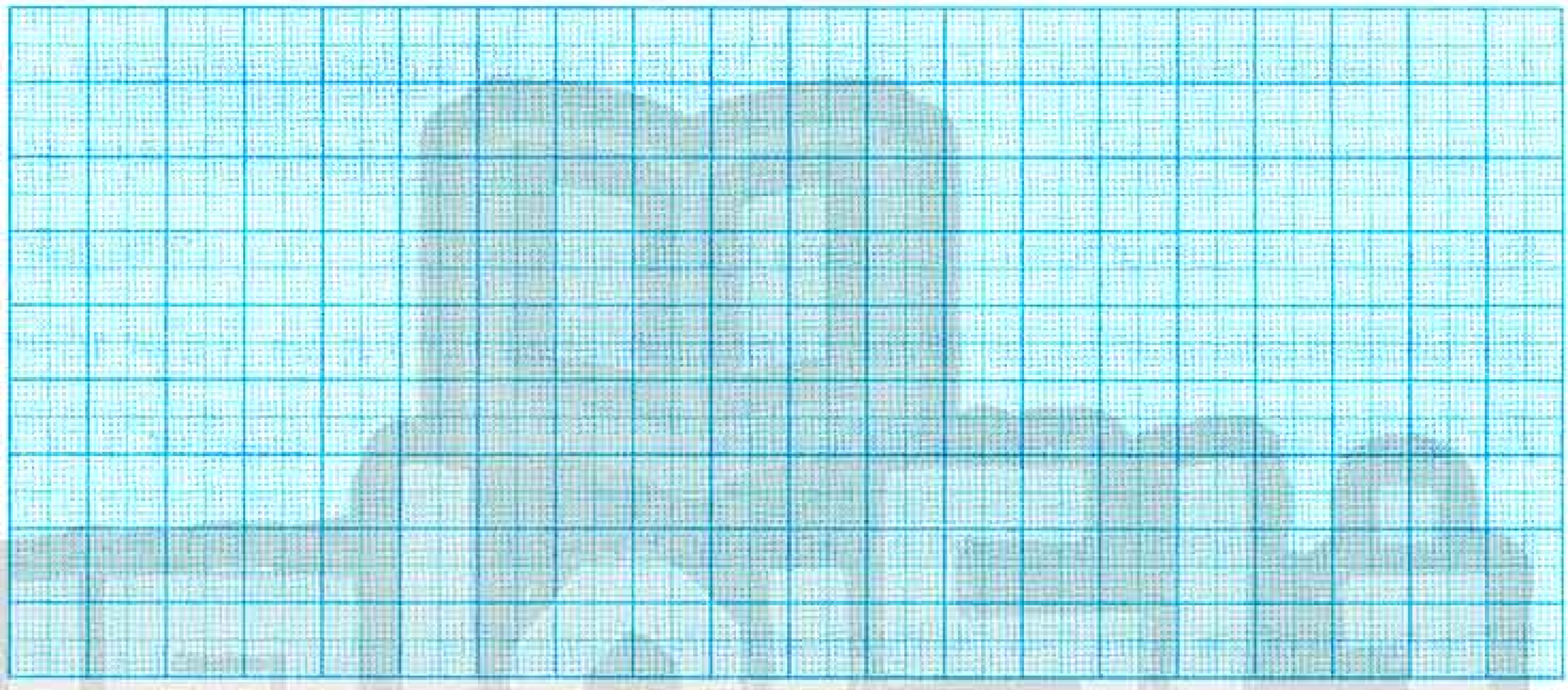
21) Simplify: $\frac{7^5 \times 7}{7^4}$ (Show the steps.)

....

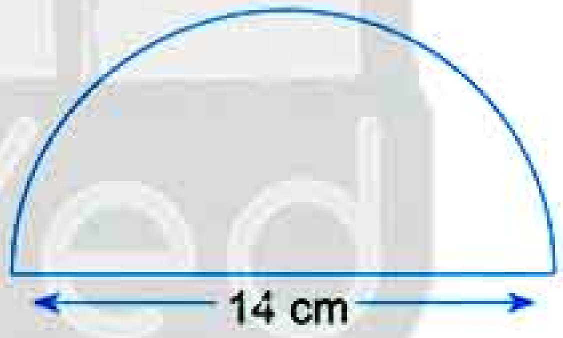
....

....

22) In the Cartesian coordinate plane, **draw** Δ ABC where A (1 , 1), B (4 , 1) and C (4 , 4), then **find** the image of Δ ABC by translation (1 , –2)



23) **Find** the area of the given figure. $\left(\pi \simeq \frac{22}{7}\right)$



....

....

....

24) **Find the solution set of each of the following:**

a) $2x + 9 = 13 \ (x \in \mathbb{Z})$

b) $x - 1 < 2 \ (x \in \mathbb{N})$

25) The following table shows the percentage of production of a factory of home electric appliances.

Kinds of appliances	Washing machine	Heater	Oven	Mixer
Percentage	25%	25%	20%	30%

Represent these data by circular sectors.

8 Giza - Orman Private School

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{Z}$ or $\mathbb{N}$)

2) $(-1)^8$ .... $(-1)^9$ ($>$ or $<$ or $=$ or $\leq$)

3) The area of the square = side length × ....
(side length or diagonal or height or width)

4) If the length of the radius of a circle is 10 cm, then its surface area equals .... cm^2.
Given that ($\pi = 3.14$) (3.14 or 31.4 or 314 or 3140)

5) If $x - 2 = -4$, then $x =$ .... where $x \in \mathbb{Z}$ (2 or 4 or –2 or – 4)

6) A circle of diameter length 10 cm, its circumference = ... π cm. (5 or 10 or 15 or 25)

7) The probability of the impossible event = ... (zero or 1 or 0.5 or 1.2)

8) The number which satisfies the inequality: $x > -2$ is .... (–1 or –2 or –3 or –4)

9)The image of the point (–3 , 4) by translation (x , y – 4) is ....
((–3 , 0) or (–7 , 4) or (–3 , 8) or (–1 , 4))

10) The smallest non-negative integer number is .... (1 or 0 or –1 or 2)

11) If $x - 1 = 2$, then $x =$ .... (3 or 13 or 17 or 11)

12) The equation: $3x^3 + 5 = 5$ is of the .... degree. (first or second or third or fourth)

13) The height of a cuboid whose total area is 120 cm^2 and the dimensions of its base are 4 cm and 6 cm equals .... cm. (3 or 6 or 6.3 or 3.6)

14) The probability of getting a number divisible by 3 in an experiment of rolling a fair die once is .... (0 or $\frac{1}{3}$ or $\frac{1}{2}$ or 1)

2 Complete each of the following:

15) The perimeter of the rectangle = ...

16) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ....

17) The probability of the sure event = ...

18) The additive identity element in $\mathbb{Z}$ is ....

19) The lateral area of a cube = the area of one face × ....

20) The equation: $5x^2 - 3 = 17$ is of the .... degree.

3 Answer the following questions:

21) Find the result of: $\frac{(-2)^7 \times (-2)^5}{(-2)^9}$

22) Find the solution set of the equation:

$2x - 3 = -9$, where $x \in \mathbb{Z}$

23) Find the solution set of the inequality:

$2x - 1 \le 5$, where $x \in \mathbb{N}$, then represent the solution set on the number line.

24) A circle, its circumference is 88 cm, calculate the area of its surface where $\left(\pi \simeq \frac{22}{7}\right)$.

25) A cuboid whose total area is 132 cm^2 and its lateral area is 112 cm^2. Calculate the area of its base.

26) The following table shows the percentages of production of chickens on four farms within one month:

Farms	First	Second	Third	Fourth
Percentages of production	15%	30%	20%	35%

Represent these data by circular sectors.

9 Alexandria - Mathematics Inspection

1 Complete the following:

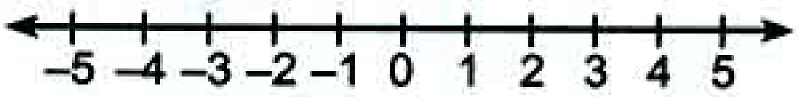
1) If $x = |-8|$, then $x =$ ....
2) If a dice is rolled once, then the probability of getting a number ≤ 5 is ....
3) 3 km = ... metres.
4) The height of the cuboid whose lateral area is 150 cm^2 and the dimensions of its base are 6 cm and 9 cm is .... cm.
5) If $2x = -6$, $x \in \mathbb{Z}$, then the set of solution is ....
6) The surface area of the semi-circle is .... π cm^2.
7) The number which if it is added to its double, the result will be 9 is ....
8) The image of the point (2 , –1) by translation 3 units in the positive direction of x-axis is ....

2 Choose the correct answer:

9) $(3)^8 \div (-3)^5 =$ .... ($(-3)^3$ or $(3)^3$ or (–3) or 3)
10) If $\left|\frac{x}{3}\right| = 4$, then $x =$ .... (12 or (–12) or –12 only or 12 only or others)
11) The solution set of inequality $2 \leq x < 3$, where $x \in \mathbb{N}$ is .... ({5} or {2} or {2 , 1.5} or {2 , 3})
12) The ratio between the total area and lateral area of a cube = ... (1 : 4 or 2 : 3 or 3 : 2 or 4 : 1)
13) $\frac{81}{3}$ .... $\mathbb{Z}^+$ ($\in$ or $\notin$ or $\not\subset$ or $\subset$)
14) The solution set of the inequality $x < 0$ in $\mathbb{Z}$ is .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{N}$ or $\varnothing$)
15) If the probability of failure of a student is 0.23, then the probability of his success = ... (1 or 0.23 or 0.77 or 7.7)
16) $36 \times 65 + 15 \times (-36) = 36$ (65 .... 15) (– or + or × or ÷)
17) If $\varnothing$ is the empty set, then P ($\varnothing$) = ... (1 or 0 or 0.5 or $\varnothing$)
18) The circle whose diameter length is 14 cm, its area = ... where $\left(\pi \simeq \frac{22}{7}\right)$ (44 cm^2 or 154 cm^2 or 154 cm or 44 cm)
19) The number which satisfies the equation: $x + 3 = -17$, where $x \in \mathbb{Z}$ is .... (15 or –5 or 5 or –20)
20) If A (– 4 , 4), B (1 , 4), then the length of $\overline{AB}$ = ... units (–5 or 5 or 3 or –3)

3 Answer the following questions:

21) Find the solution set of the inequality $2x - 2 \leq 4$, where $x \in \mathbb{Z}$, then represent the solution set on the number line.



....

....

22) If a = –2, b = –3 , c = 0, then find the value of: $-(a + b)^{\circ}$.

....

....

23) The total area of a cube is 468 cm^2, find:

1) The area of one face

2) The lateral area

....

....

24) On the coordinate plane,

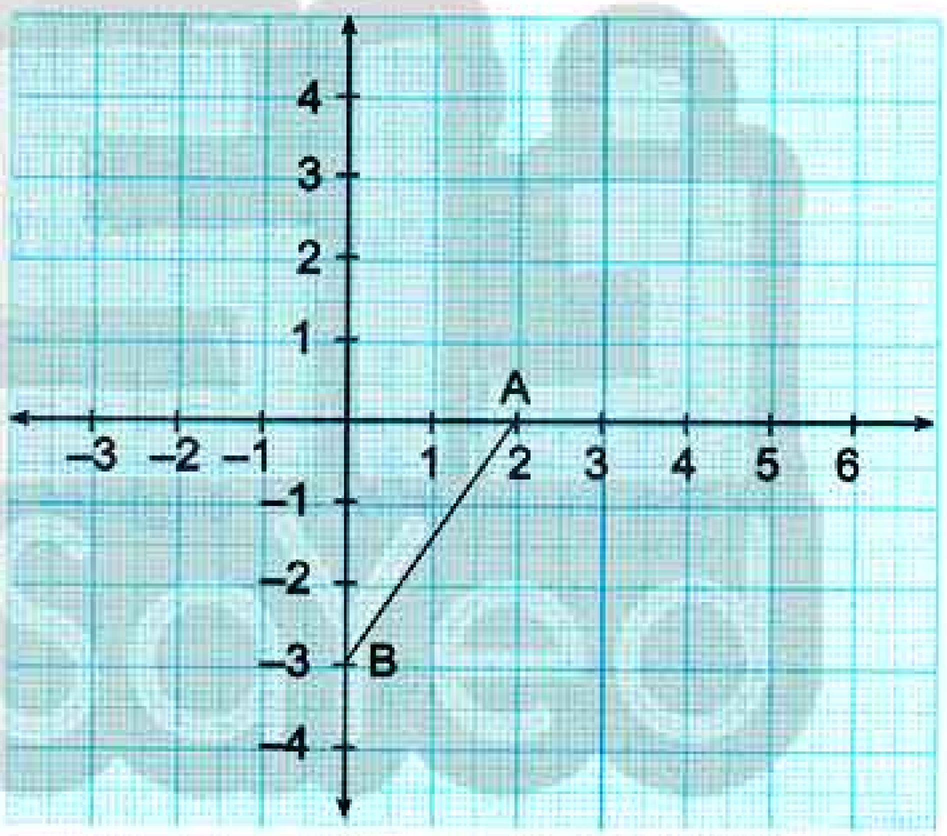
find and draw the image of $\overline{AB}$

by translation (2 , –1)

A\` = (......... , .........) , B\` = (......... , ...)

....

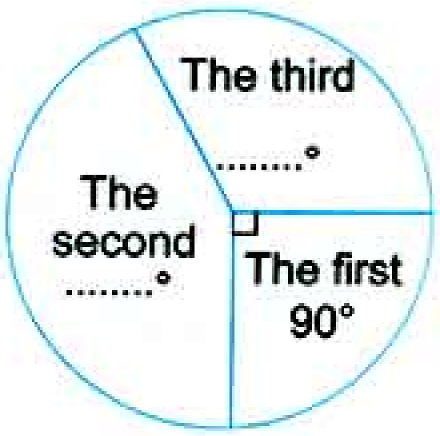
....



25) The following table shows the percentage of production of three farms.

Farms	The first	The second	The third
The percentage	%........	%........	30%

Complete the previous table and find the measures of the central angles of the opposite circular sectors.



10 Alexandria - El-Montazah Educational Zone

1 Choose the correct answer:

1) $(-1)^7 + (-1)^4 = ...$ (zero or 1 or –1 or 11)

2) The image of the point (2 , –3) by translation (x – 1 , y) is ....

((1 , –3) or (2 , –1) or (2 , – 4) or (–1, –3))

3) 0.......... $\mathbb{Z}$. ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

4) The symbolic expression for "x is less than or equal to 2" is ....

($x > 2$ or $x < 2$ or $x \leq 2$ or $x = 2$)

5) If a regular die is tossed once, then the probability of the appearance of the number 4 = ... (zero or $\frac{4}{6}$ or $\frac{1}{6}$ or 4)

6) The area of the circle whose radius length is 7 cm = ... cm^2.

(7 π or 14 π or 42 π or 49 π)

7) The neutral element of addition in $\mathbb{Z}$ is .... (1 or 0 or –1 or 2)

8) The number which satisfies the inequality $4 > x > -2$ of the following is ....

(4 or –4 or –1 or –2)

9) If $x + 2 = 5$, where $\in \mathbb{Z}^-$, then the solution set of the equation is ....

($\varnothing$ or {3} or {–3} or 0)

10) The equation $x^2 + 3^2 = 9$ is of the .... degree. (second or third or fourth or fifth)

11) The measure of the angle of a circular sector whose area is $\frac{1}{4}$ the area of the circle is .... (360° or 180° or 270° or 90°)

12) 2 .... |–13| (> or = or ≥ or <)

2 Complete the following:

13) The circumference of a circle = ... × π

14) The result of 5 + [(3 –1) + 2] is ....

15) $\frac{4^4 \times 4^3}{4^6} = ...$

16) If $x - 3 = 12$, then x = ..., where $x \in \mathbb{Z}$

17) If the perimeter of one face of a cube is 40 cm, then is lateral area = ... cm^2

18) When tossing a coin once, then the probability of getting a head = ...

19) The set of integers $\mathbb{Z} = \mathbb{Z}^+ \cup .... \cup \mathbb{Z}^-$

20) The image of the point (1 , –2) by translation (.......... , ...) is the point (0 , 0)

3 Answer the following questions:

21) Find in $\mathbb{Z}$ the solution set of the equation $2x - 1 = -3$

....

....

22) If the lateral area of a cube is 36 cm^2, calculate its total area.

....

....

23) Use the properties of multiplication in integers to calculate $4 \times (-33) \times 25$

....

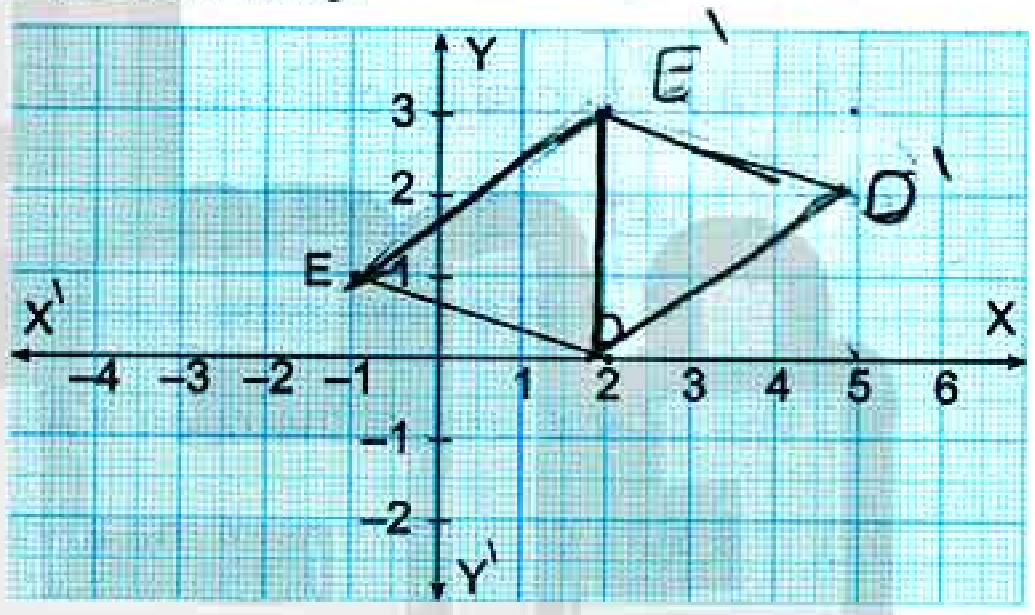
....

24) In the opposite coordinate plane, determine the following:

a) The image of $\overline{DE}$ where D (2 , 0) and E (–1 , 1) by translation $(x + 3, y + 2)$.   D' (5,2)   E` (2,3)

b) What is the name of the shape DD` E`E?

....



25) The following table shows the number of students participating in the school activities.

Activities	Sports	Arts	Cultural
Percentage	45%	25%	30%

Represent the data above by the circular sectors.

11 Alexandria - East Educational Directorate

1 Choose the correct answer:

1) $\mathbb{Z} = \mathbb{N} \cup$ ………… ({0} or ∅ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

2) {0} ………… $\mathbb{Z}$ (∈ or ∉ or ⊂ or ⊄)

3) If $x \in \{2, 5, -3\} \cap \{-5, -2, -3\}$, then x =………… (–5 or –3 or –2 or 2)

4) $(9)^2$ ………… $(-3)^4$ (> or < or = or ≥)

5) (–7) ………… (–|–5|) (> or < or = or ≥)

6) The solution set of the equation: $x - 2 = 3$ in $\mathbb{Z}$ is ………………. (5 or 1 or {5} or {3})

7) The number which satisfies the inequality $x + 4 > 2$ is …………… (–1 or –2 or –3 or –4)

8) A cube of edge length 6 cm; then its lateral area = ……. cm^2 (216 or 180 or 144 or 108)

9) The image of the point (……… , ………) by translation (x – 3, y + 4) is (–5 , –3).

((–8 , 15) or (–2 , 7) or (–8 , 7) or (–2 , –7))

10) The lateral area of the cube = Area of one face × ………… (2 or 4 or 6 or height)

11) The sum of measures of the angles of the sectors around the centre of the circle = ………… (100° or 150° or 180° or 360°)

12) If ∅ is empty set; then P (∅) = ………… (0 or 2 or 1 or 0.5)

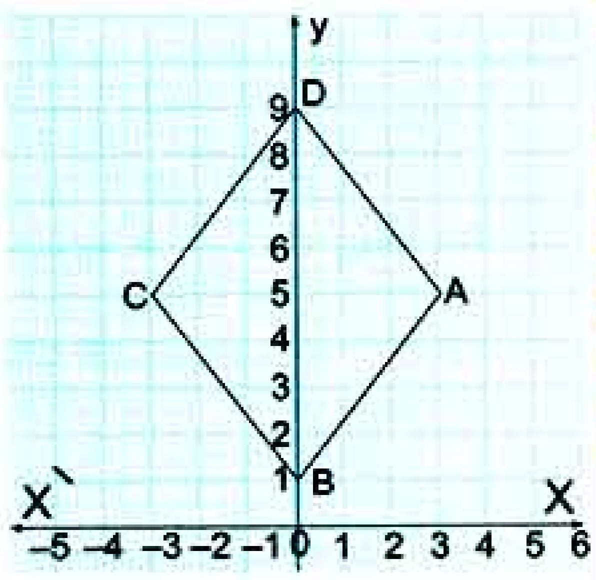
2 Complete the following:

13) |–5| + |7| = ……………

14) 5 × (–3 + 7) = 5 × (–3) + 5 × ……………

15) In $\mathbb{N}$: $x + 4 < 7$, then S.S. = ……………

In the opposite coordinate plane:



16) A (……………, ……………,)

17) The length of $\overline{AC}$ = ……………units.

18) If the lateral area of a cube is 100 cm^2, then its total area = ... cm^2

19) If the perimeter of the base of a cuboid is 10 cm, its height is 4 cm,

then its lateral area = ... cm^2

20) When tossing a die once, then the probability of getting the number 5 = ...

3 *Answer the following questions:*

21) **Arrange** the following numbers in ascending order: –9 , 17 , |–9| , –15 , 16

The order is .... , ... , ... , ... and ....

22) **Find** the result in the simplest form by using the basic laws of repeated multiplication:

$$\frac{(-5)^3 \times (-5)^2}{(-5)^4}$$

....

....

....

23) A circle its diameter is 7 cm, **calculate** its surface area, where $\pi \simeq \frac{22}{7}$.

....

....

....

12 Menofia - Official Language Schools

1 Choose the correct answer:

1) If $3x = 27$, then $x =$ .... (3 or 9 or 12 or 24)

2) The image of the point (3 , – 4) by translation (2 , –1) is ....
((1 , –3) or (5 , –5) or (6 , 4) or (–1, 3))

3) $(-2)^2$........... $(3)^{zero}$ (< or > or = or ≤)

4) If a die is tossed once, then the probability of getting a prime number = ...
(0.2 or 0.5 or 0 or 1)

5) $\mathbb{Z}^+ \cup \{0\} =$ .... ($\mathbb{N}$ or $\mathbb{Z}^-$ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

6) The ratio between the lateral area: the total area of the cube = ...
(1 : 2 or 1 : 3 or 2 : 3 or 3 : 1)

7) A cuboid with square base, its lateral area = 200 cm^2, and its height = 5 cm, then the side length of its base = ... cm (5 or 10 or 15 or 20)

8) $\{\frac{3}{9-4}\}$ .... $\mathbb{Z}$ (∈ or ∉ or ⊂ or ⊄)

9) If A = S, then P(A) = ... (0 or 1 or 0.5 or 0.3)

10) The measure of the central angle of a quarter of a circle is ....
(60° or 90° or 180° or 360°)

11) The number of lines of symmetry of a square = ... (0 or 1 or 2 or 4)

12) The number which verifies the inequality $2x + 1 < -1$ is .... (4 or –2 or 0 or –1)

2 Complete the following:

13) The number which if added to its twice, the result will be 9 is ....

14) $3 + |-3| =$ ....

15) The degree of the equation: $x^2 - 6 = 3$ is ....

16) The greatest non-positive integer number is ....

17) The sum of measures of the interior angles of a triangle = ...

18) The solution set of the equation: $x - 2 \le 1 \in \mathbb{N}$ is ....

19) The additive inverse of $(-5)^2$ is ....

20) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ....

3 Answer the following questions:

21) Find the value of $\frac{2^4 \times (-2)^7}{(-2)^5 \times (-2)^2}$ (Show your steps.)

....

....

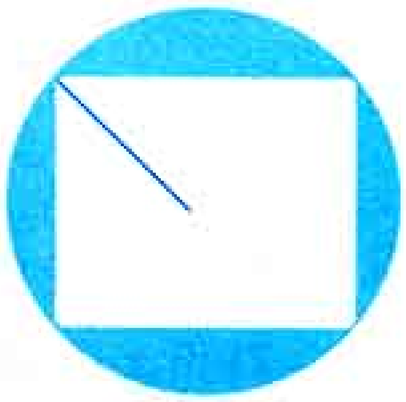
22) If the length of a cuboid box without a lid is 16 cm, its width is 7 cm and its height is 9 cm, calculate its lateral area and total area.

....

....

23) A square inscribed in a circle with radius 7 cm,

find the surface area of the shaded part $\left(\pi \simeq \frac{22}{7}\right)$



....

....

24) Find the solution set of the following, where $x \in \mathbb{Z}$.

a) $x + 8 = 19$

....

....

b) $1 - 2x > 5$

....

....

25) The following table shows the percentages of students who participated in school activities.

Activities	Sports	Social	Arts
Percentages	40%	35%	25%

Represent these data by circular sectors.

13 Gharbia - Directorate of Education

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .... ($\mathbb{Z}^+$ or $\{0\}$ or $\mathbb{Z}^-$ or 0)

2) The equation $2x^3 = 4$ is of the .... degree. (1^{st} or 2^{nd} or 3^{rd} or 4^{th})

3) The image of the point A (– 4 , 3) by translation (–1 , – 4) is ....

((–5 , 7) or (–5 , –1) or (–7 , 3) or (–3 , –1))

4) Two consecutive natural numbers, the smaller one is x, then the greater is ....

($2x$ or $x + 1$ or $2x + 1$ or $x - 1$)

5) $(3)^0 + (-3)^0 =$ .... (6 or 0 or 1 or 2)

6) A circle of diameter 8 cm, its area = ... cm^2 (9π or 8π or 16π or 64π)

7) If: $x \in \mathbb{N}$, then the S.S. of the inequality $-x > 3$ is ....

({4 , 5 , ...} or {3} or {– 4 , – 5 , – 6 ....} or ∅)

8) A basket contains cards numbered from 1 to 20. If a card is drawn randomly, then the probability that the number written on it is divisible by 6 = ...

($\frac{3}{20}$ or $\frac{4}{20}$ or $\frac{5}{20}$ or $\frac{6}{20}$)

9) The additive inverse of (–5) is .... (–10 or $\frac{1}{-5}$ or |–5| or 0)

10) The probability of success of a student is 70%, then the probability of his failure is ....

(0.7 or 0.07 or 0.3 or 0.03)

11) The area of one face of the cube = ... its total area. ($\frac{1}{2}$ or $\frac{1}{8}$ or $\frac{1}{6}$ or $\frac{1}{4}$)

12) The S.S. of the inequality $-2x < 0$ in $\mathbb{Z}$ is .... ($\mathbb{N}$ or $\mathbb{Z}$ or ∅ or $\mathbb{Z}^+$)

2 Complete the following:

13) The lateral area of a cube = ... × ....

14) If five times of a number equals 60, then the number is ....

15) The image of the point (–1 , 2) by translation (2 , –2) is ....

16) A circle, its circumference is 62.8 cm, then its area = ... cm^2, where ($\pi = 3.14$)

17) $|-1| \times (-4) =$ ....

18) The lateral area of a cuboid with base in the shape of a square with side length 8 cm and height 5 cm = ... cm^2

19) $(-5)^2 \times (5)^3 = 5^{\cdots\cdots}$

20) If the sum of edge lengths of a cube is 24 cm, then its lateral area = ... cm^2

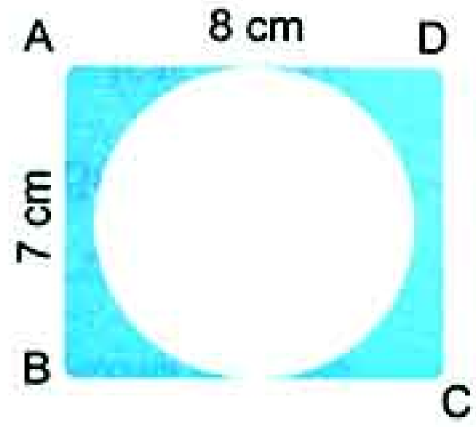
3 Answer the following questions:

21) Find the value of: $\frac{(8)^3 \times (8)^5}{(-8)^8}$

....

....

22) In the opposite figure: If ABCD is a rectangle, whose length = 8 cm, and width = 7 cm, then calculate the area of the shaded part $\left(\pi \simeq \frac{22}{7}\right)$



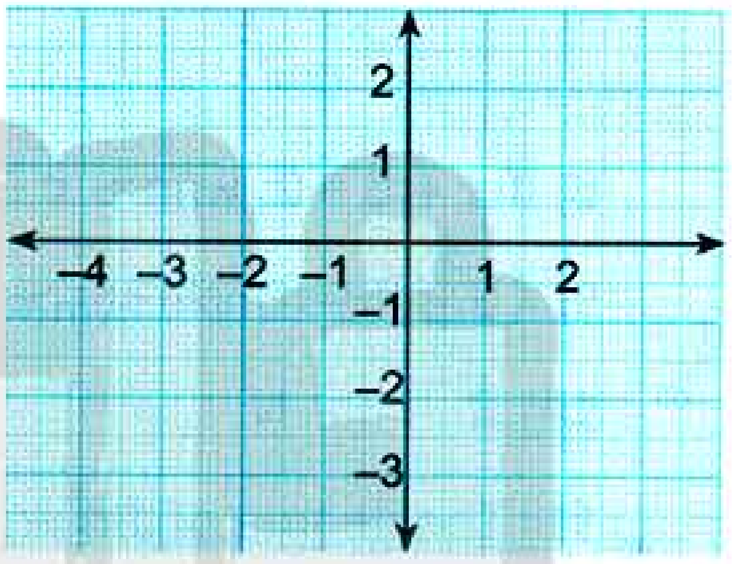
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23) Draw Δ ABC, where

A (1 , 1), B (–3 , –1)

and C (0 , –5)



24) In an experiment of throwing a fair die once and observing the number on the upper face, find: the probability of each of the following events:

1) Getting a number greater than 6 = ...

2) Getting a prime number = ...

25) The following table shows the percentages of the production of chickens on four farms within one month: Represent by pie chart.

Farms	1^{st}	2^{nd}	3^{rd}	4^{th}
Percentage	10%	35%	30%	25%

14 Kafr El-Sheikh - Kafr El-Sheikh Educational Directorate

1 Choose the correct answer from those given:

1) The additive identity element in $\mathbb{Z}$ is .... (1 or –1 or 0 or 10)

2) When tossing a coin once, the probability of getting a head = ... (Zero or 2 or 1 or 0.5)

3) .... represents an inequality. ($x > 7 - 5$ or $3x + 2 = 11$ or $2x = 24$ or $\frac{x}{5} = 4$)

4) $- |-45|$ = ... (45 or – 45 or |45| or |– 45|)

5) The image of the point (–1,2) by translation of magnitude 3 units in the positive direction of x-axis is .... ((–3, 0) or (2 , 2) or (–2 , 2) or (–1 , 3))

6) The number which satisfies the inequality: $2x + 1 \le -1$ .... (4 or 2 or 0 or –1)

7) If the total surface area of the cube is 726 cm^2, then its lateral surface area = ... cm^2 (484 or 121 or 242 or 181.5)

8) If $x + 6 = 2$, where $x \in \mathbb{Z}$, then x = ... (4 or – 4 or 12 or –12)

9) If S is the sample space of a random experiment, then P(S) = ... (zero or 2 or 1 or 0.8)

10) $\mathbb{Z}^+$ .... N ($\subset$ or $\not\subset$ or $\in$ or $\notin$)

11) The degree of the equation $x^3 - 4x^2 = 0$ is .... (first or second or third or fourth)

12) The total surface area of the cube = area of one face × .... (12 or 4 or 3.14 or 6)

---

2 Complete each of the following:

13) .... is neither positive nor negative.

14) The surface area of the circle = π × ....

15) The perimeter of the base of a cube is 24 cm, then its total area is .... cm^2.

16) If {2 , x} ∪ { –4 , 0 , 4} = {0 , 2 , –2 , –4 , 4}, then x = ...

17) A ball was selected without looking from a box that contains 8 white balls and 12 red balls, then the probability of selecting a white ball = ...

18) The image of the point (8 , –10) by translation (–3 , 4) is ....

19) If $\frac{x}{5} = 4$, then x =................

20) The lateral surface area of the cuboid = perimeter of the base × ....

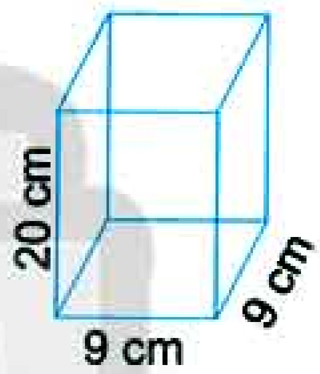
3 *Answer the following:*

21) Use the distributive property to **find** the value of:

$63 \times 85 + 63 \times 15$

22) **Find** the solution set of the inequality $3x + 2 \leq 11$ in $\mathbb{Z}$:

23) A cuboid shaped box with a square base its side length is 9 cm and its height is 20 cm. **Calculate** its lateral area and its total area.



24) Nahid is a clerk in an institution, she contributes with her husband by her salary as shown in the following table:.

House rent	Food	Savings
25%	50%	25%

Represent these data by circular sectors.

25) A circle of diameter length 12 cm. **Calculate** its surface area. ($\pi \simeq 3.14$)

15 Damietta - Official Language Schools

1 Choose the correct answer:

1) $\mathbb{Z} \cap \mathbb{N} =$ ………… ($\mathbb{Z}$ or $\mathbb{Z}^+$ or {0} or $\mathbb{N}$)

2) The equation: $x^3 + 4 = 5$ is of the ………… degree.
(first or second or third or fourth)

3) A circle, its radius is 4 cm, then its area =………… π cm^2 (4 or 8 or 12 or 16)

4) The image of the point (–3 , 5) by translation (x + 1, y – 2) is …………
((– 4 , 3) or (–2, 3) or (–2 , –3) or (2 , 3))

5) If a fair die is tossed once, then the probability of getting an odd number = …………… .
$\left(0 \text{ or } 1 \text{ or } \frac{1}{3} \text{ or } \frac{1}{2}\right)$

6) $|-4| - |4|$ ………………… (zero or 1 or 8 or –8)

7) All the following numbers satisfy the inequality $x > -3$ except …………
(zero or – 4 or –1 or 2)

8) The sum of edge lengths of a cube is 96 cm, then its lateral area = ………… cm^2
(8 or 64 or 256 or 384)

9) A circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ……… °
(90 or 120 or 180 or 270)

10) If $3x = -9$, then: $x \in$ ………… ($\mathbb{N}$ or $\mathbb{Z}^+$ or $\varnothing$ or $\mathbb{Z}^-$)

11) $(-1)^8 + (-1)^9 + (-1)^{zero} =$ ………… (zero or –1 or 1 or 2)

12) The solution set of the inequality: $2 \le x < 3$ where $x \in \mathbb{N}$ is …………
({zero} or {2} or {3} or {2 , 3})

2 Complete the following:

13) $\frac{(-2)^7 \times (-2)^5}{2^{10}} =$ ……………

14) If: $x - 3 = |-7|$, then $x =$ ……………

15) If: x (-3 , 2), y (–3 , –4), then the length of $\overline{xy}$ = …………… units.

16) The height of a cuboid whose lateral area is 160 cm^2 and dimensions of its base are 7 cm and 3 cm = ………… cm.

17) A box contains 5 white balls, 3 blue balls and 8 red balls, all of them are symmetric, one ball is drawn from the box at random, then the probability that the drawn ball is red = …………

18) The multiplicative identity element in $\mathbb{Z}$ is ....

19) The image of the point (–1 , 2) by translation of magnitude of 3 units in the positive direction of Y-axis is ....

20) The surface area of the circle = ...

3 Answer the following:

21) Find the solution set of inequality: $3x - 2 \geq 4$, where $x \in \mathbb{Z}$.

....

....

22) Use the properties of addition and subtraction in $\mathbb{Z}$.

Find: 115 + 390 + (–115) (Write the used property.)

....

....

23) A cube of edge length 12 cm. Find the total area.

....

....

24) A circle whose diameter is 14 cm, calculate its area $\left(\text{where } \pi \simeq \frac{22}{7}\right)$.

....

....

25) The following table shows the rate of the score of 200 students in one school of Cairo Governorate.

Rate	Excellent	Good	Pass	Weak
Percentage	15%	50%	25%	10%

Represent these data by circular sector.

....

....

16 Sharkia - Sharkia Educational Directorate

1 Choose the correct answer:

1) $(-1)^{105} + (-1)^{20} =$ .... (2 or 1 or –1 or zero)

2) If $x + 2 = |-5|$, then $x =$ .... (–7 or 7 or 3 or –3)

3) If $x \in \{2, -3\} \cap \{5, -3\}$, then $x =$ .... (–2 or –1 or 3 or –3)

4) If a fair die is tossed once, then the probability of the appearance of the number 5 = ... (zero or $\frac{1}{6}$ or $\frac{5}{6}$ or 1)

5) $3^2 + 3^2 + 3^2 =$ .... (3^6 or 9^2 or 3^3 or 9^6)

6) If $2x = -4$, $x \in \mathbb{Z}$, then the set of solution is .... ({2} or {–2} or {4} or {– 4})

7) The image of the point (– 4 , 3) by translation (–1 , – 4) is .... ((–5 , 7) or (–5 , –1) or (–7 , 3) or (–3 , –1))

8) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ .... (zero or 1 or –1 or $\varnothing$)

9) The sum of the measures of all angles accumulative at the centre of a circle equals .... (90° or 108° or 180° or 360°)

10) The number which satisfies the inequality $x > -2$ is .... (–1 or –2 or –3 or –4)

11) If $x = |-2|$, y = –3, then x y = ... (5 or –5 or 6 or –6)

12) The total area of the cube with 3 cm edge length = ... cm^2 (12 or 27 or 36 or 54)

---

2 Complete the following:

13) $(-5) \times [7 + (-5)] =$ .... (in the simplest form)

14) The degree of the equation: $3x^2 + 4x - 1 = 0$ is ....

15) A circle of diameter length 8 cm, then its area = ... π cm^2.

16) $7^0 + (-7)^0 =$ ....

17) The additive inverse of $(-8)^0$ is ....

18) The greatest negative integer is ....

19) At throwing a fair die and observing the upper face, then the probability of getting a number greater than 6 equals ....

20) $\frac{a^m}{a^n} = a^{\cdots\cdots}$ (where m , n $\in \mathbb{Z}^+$, m ≥ n)

3 Answer the following:

21) **Find** the result of: $\frac{(2)^5 \times (-2)^3}{(-2) \times (2)^4}$

22) A cuboid, its length is 6 cm, its width is 4 cm and its height is 8 cm, **find:**

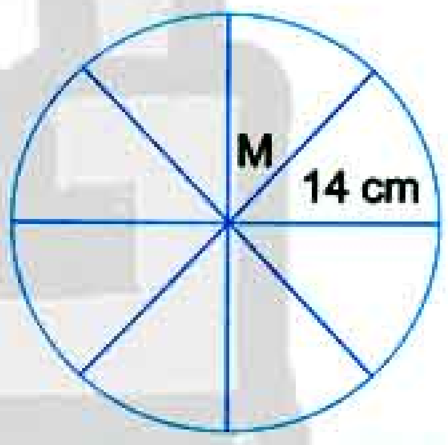
1) The lateral area.

2) The total area.

23) **a)** **Find** the solution set of the inequality: $x + 3 < 5$ (where $x \in \mathbb{Z}$).

b) **Find** the solution set of the equation: $2x + 1 = -9$ in $\mathbb{Z}$.

24) **In the opposite figure:**



M is a circle of radius length 14 cm is divided into 8 equal circular sectors. **Find:**

1) The surface area of the circle M.

2) The area of one circular sector. $\left(\pi \simeq \frac{22}{7}\right)$

25) The following table shows the percentage of the production of a factory of electric sets (4 kinds):

Kinds of the sets	TV	Washing machine	Refrigerator	Cooker
Amount of the production	35%	25%	15%	25%

Represent these data by pie charts.

17 Port Said - Mathematics Inspection

1 Choose the correct answer:

1) The circumference of a circle = $\pi \times$ ………… (r or r^2 or 2r or 3.14)

2) If $-2x = 10$, then $x \in$ ………… ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

3) The number which satisfies the inequality $x - 2 > 3$ is ………… (–1 or –2 or 6 or 4)

4) $(-1)^8 + (-1)^9 =$ ………… (zero or –1 or 1 or 2)

5) $|5 - 11|$ …………… $\mathbb{Z}$ ($\notin$ or $\in$ or $\subset$ or $\not\subset$)

6) $2^5 \times 2^2 =$ ………………. (2^7 or 2^4 or 2^3 or 1)

7) When tossing a die, the probability of getting a number on the upper face more than 6 = ………. ($\varnothing$ or zero or 1 or 2)

8) $|-3| =$ ………… (3 or –3 or –|3| or 3 – 3)

9) The total area of a cube = area of one face × ……… (4 or 5 or 6 or 8)

10) The probability of impossible event = ………… ($\varnothing$ or zero or 1 or 2)

11) The image of the point (2 , 3) by translation (x + 1, y + 2) is ………… ((3 , 4) or (3 , 5) or (4 , 3) or (5 , 3))

12) If $x + 6 = 2$, $x \in \mathbb{Z}$, then $x =$ ………… (4 or |–4| or –4 or |4|)

2 Complete the following:

13) $3 + |-3| =$ ……………

14) The perimeter of the base of a cuboid is 10 cm and its height is 4 cm, then its lateral area = ……………

15) The probability of the sure event = ……………

16) The sum of measures of all accumulated angles of the sectors at the centre of a circle = …………….

17) The area of the circle = ………… × π.

18) If the total area of a cube is 150 cm^2, then the length of its edge is …………… cm.

19) $\mathbb{Z}^+ \cup \{0\} =$ ……………

20) If $3x = 9$, then $x =$ ……………

3 Answer the following:

21) Find the result of $(4 \times 3^2 \times 3^2) - 7 \times 3$

....

....

....

22) In the coordinate plane, locate the points A (0 , 1), B (4 , 3), C (4 ,7), then find:

1) The length of $\overline{BC}$ = ... units

2) The image of Δ ABC by translation (0 , –4)

23) Find the solution set of the inequality $x - 2 \geq 3$, where $x \in \mathbb{Z}$, then represent it on the number line.

....

....

....

24) A cuboid-shaped box with a square base, its length is 10 cm and its height is 7 cm. Calculate the lateral area.

....

....

....

25) The following table shows the percentage of the production of a factory of house electric sets.

Kinds of sets	Washing machine	Heater	Oven	Mixer
Percentage	30%	15%	40%	15%

Represent these data by circular sectors.

18 Ismailia - Directorate of Education

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or zero or $\mathbb{N}$)

2) The probability of the certain event = ... (zero or 1 or 5 or $\frac{1}{2}$)

3) The image of the point (3 , 5) by translation (2 , –1) is .... ((5 , 6) or (5 , 4) or (1 , 4) or (1 , 6))

4) The sum of the measures of all the central angles of the sectors around the centre of the circle is .... (90° or 80° or 270° or 360°)

5) If $x = |-2|$, y = –3, then xy = ... (–5 or 5 or –6 or 6)

6) The degree of the equation: $x^2 + 3 = 4$ is of the ...... degree. (first or second or third or fourth)

7) If the area of one face of a cube is 25 cm^2, then its lateral area = ... cm^2 (150 or 20 or 25 or 100)

8) If $2x = 10$, $x \in \mathbb{N}$, then x = ... (3 or 4 or 5 or 6)

9) $(3)^{zero} + (-3)^{zero}$ = ... (6 or 0 or 1 or 2)

10) All the following numbers satisfy the inequality $x > -3$ except .... (0 or – 4 or –1 or –2)

11) A circle, its diameter length is 6 cm, then its surface area = ... cm^2 (3 π or 6 π or 9 π or 36 π)

12) The distance between two points A (–3 , 2) and B (2 , 2) = ... length units (–5 or 2 or 5 or 1)

---

2 Complete the following:

13) The greatest negative integer number is ....

14) The probability of getting a head when tossing a regular coin once is ....

15) The ratio between the lateral area of a cube and its total area = ... : ....

16) If the sum of all edge lengths of a cube is 144 cm, then its total area = ... cm^2

17) If $x - 2 = |-4|$, then x = ...

18) The multiplicative identity element in $\mathbb{Z}$ is ....

19) If the base of a cuboid is in the shape of a square of side length 10 cm and its height is 7 cm, then its lateral surface area = ... cm^2

20) A circle's circumference is 88 cm, then its area = ... cm^2 $(\pi = \frac{22}{7})$

3 Answer the following:

21) a) Simplify: $\frac{7^5 \times 7^3}{7^6}$

....

....

b) Use the properties to **find** the result: 116 + 190 + (–116)

....

....

22) Find the solution set of the equation: $2x + 1 = -13$ in $\mathbb{Z}$.

....

....

23) A cuboid's length is 6 cm, its width is 4 cm and its height is 8 cm. **Find** its lateral area and total area.

....

....

24) A box contains 10 identical balls numbered from 1 to 10, one ball is drawn at random, write the sample space, then **find** the probability that the drawn ball has:

1) An odd number

2) A number divisible by 3

3) An even prime number

4) A number more than 6

....

....

25) Draw Δ ABC on a squared lattice, where A (4 , 4), B (0 , 2) and C (6 , –2), then **find** its image by translation $(x - 4, y + 1)$.

19 Suez - South of Suez Directorate

1 Choose the correct answer:

1) When tossing a die once, the probability of getting a number on its upper face more than 6 = ... (zero or $\frac{1}{6}$ or $\frac{1}{3}$ or $\varnothing$)

2) $\{0\}$ .... $\mathbb{N}$ ($\subset$ or $\not\subset$ or $\in$ or $\notin$)

3) The equation $x^2 + 3 = 8$ is of the .... degree. (first or second or third or fourth)

4) $|-5|$ .... 5 ($\geq$ or $=$ or $>$ or $<$)

5) $(-1)^8 + (-1)^9 =$ .... (-1 or zero or 1 or 2)

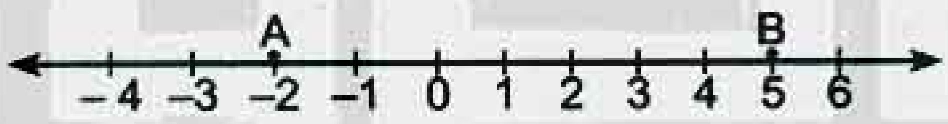
6) The sum of the measures of the accumulative angles at a point = ...° (90 or 180 or 270 or 360)

7) If $2x = -6$, then $x \in$ .... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

8) $\frac{1}{7^5} \times 7^5$ .... 1 ($\geq$ or $=$ or $>$ or $<$)

9) The total area of the cube = area of one face X .... (2 or 4 or 6 or 8)

10) AB = ... units (8 or 7 or 5 or -2)



11) $5 \times (-4) =$ .... (-20 or 20 or 9 or -1)

12) The image of the point $(-3, 4)$ by translation $(x, y-4)$ is .... ($(-3, 0)$ or $(-7, 4)$ or $(-3, 8)$ or $(-1, 4)$)

2 Complete the following:

13) $\mathbb{Z} - \mathbb{N} =$ ....

14) The circumference of the circle = ... $\times \pi$

15) $\frac{2^2 \times 2^5}{2^2} =$ ....

16) If $x + 6 = 2$, $x \in \mathbb{Z}$, then $x =$ ....

17) The lateral area of the cuboid = perimeter of the base × ....

18) A cube of edge length 10 cm, then its lateral area = ...

19) .... = (length + width) × 2

20) A box contains 5 white balls, 3 blue balls and 8 red balls all of them are symmetric. One ball is drawn from the box at random. Then the probability that the drawn ball is red = ...

3 Answer the following:

21) Use the properties of addition in $\mathbb{Z}$ to **find** the result of:

(–7) + 19 + 17 (state the property used in each step)

....

....

....

22) **Find** the solution set of the following inequality in $\mathbb{Z}$: $x - 2 \leq 3$

....

....

....

23) A circle its radius is 7 cm, **calculate** its surface area $\left(\text{where } \pi \simeq \frac{22}{7}\right)$.

....

....

....

24) A cuboid-shaped box with a square base, its length is 10 cm, its height is 7 cm. **Calculate** the lateral area.

....

....

....

25) The following table shows the percentages of the production of a factory of house electrical sets.

Kinds of sets	Washing machine	Heater	Oven	Mixer
Percentage	25%	15%	40%	20%

Represent these data using circular sectors.

20 Fayoum - Directorate of Education

1 Choose the correct answer:

1) $\mathbb{N} \cup \mathbb{Z}^-$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{Z}$ or $\mathbb{N}$)

2) All the following numbers satisfy the inequality $x > -3$ except ...... (0 or –2 or –1 or –4)

3) $(-1)^{11} + (-1)^{10}$ = ... (zero or –1 or 1 or 2)

4) If $\frac{x-1}{2} = 3$, $x \in \mathbb{Z}$, then x = ... (5 or 7 or –7 or 6)

5) $|-7| + 3$ .... $|-7 + 3|$ (> or = or < or ≠)

6) The additive inverse of $(-3)^0$ is .... (3 or –3 or 1 or –1)

7) If $x = 4$, $y = -3$, then the negative number of the following is ....

($x + y$ or $x - y$ or xy or y^x)

8) The image of the point (4 , –3) by translation (x – 3, Y + 3)

is .... ((–7 , –6) or (1 , 0) or (0 , 1) or (7 , 6))

9) The probability of appearing a head when tossing a coin once = ... (zero or 2 or 1 or $\frac{1}{2}$)

10) If the probability of success of a student in mathematics is 75%, then the probability of his failure = ... (25 or 0.35 or 1 or $\frac{1}{4}$)

11) The ratio between the lateral surface area and the total surface area of a cube =..............

(2 : 3 or 3 : 4 or 6 : 4 or 1 : 2)

12) The total surface area of a cuboid = 100 cm^2 and the area of one base is 20 cm^2, then its lateral surface area = ... cm^2. (40 or 60 or 80 or 140)

2 Complete the following:

13) The degree of the equation $x^3 + 3x^2 + x + 4 = 11$ is the .... degree.

14) The solution set of the inequality $x \le 0$ in $\mathbb{N}$ ....

15) The solution set of $x + 6 = 5$ in $\mathbb{N}$ = ...

16) If the perimeter of one face of a cube is 20 cm, then its total surface area = ... cm^2

17) On the coordinates plane if the point A represents (–2 , 4) and the point B represents (5 , 4), then the length of $\overline{AB}$ = ... units.

18) A cuboid its lateral area is 120 cm^2, its length is 5 cm and its width is 4 cm, then its height = ... cm.

19) $\frac{\text{Circumference of the circle}}{2\pi}$ = ...

20) .... $\leq$ the value of probability of any event $\leq$ ....

3 *Answer the following:*

21) **Find the result:** $\frac{(-5)^5 \times (-5)^4}{(-5)^7}$

22) **Find** the solution set of the following equation in $\mathbb{Z}$: $3(x + 2) = 3$.

....

....

23) **Calculate** the area of a circle with radius 10 cm. $(\pi \simeq 3.14)$

....

....

24) A box in the shape of a cuboid, its length 10 cm, width 5 cm and height is 8 cm.

Find its lateral surface area and its total surface area.

....

....

25) The following table shows the percentage of the favourite sports in a school.

Types of the sports	Football	Basketball	Handball
Percentage of students numbers	40%	35%	25%

Represent these data by the circular sectors.

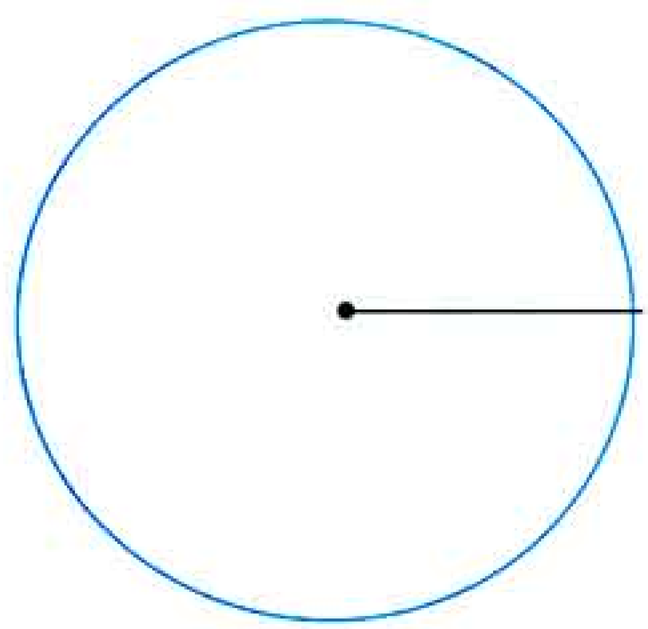
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21 Assuit – Directorate of Education

1 Choose the correct answer:

1) $|-9| + 3$ ………… $\mathbb{Z}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)
2) ………… is the multiplicative identity (neutral) in $\mathbb{Z}$ (2 or 1 or Zero or 3)
3) The number which satisfies the inequality $x > -2$ is ………… (–1 or – 4 or –3 or –2)
4) A fair die is thrown once, then the probability of appearing the number greater than 6 = ………… (zero or 2 or 1 or 0.5)
5) If $2x + 9 = 5$ where $x \in \mathbb{Z}$, then $x =$ ………… . (–4 or 4 or 2 or –2)
6) When tossing a die once, then the probability of getting a number divisible by 3 equals = ………… (zero or $\frac{1}{3}$ or $\frac{1}{2}$ or 1)
7) $2^6 \times 2^2 =$ ………… (2^3 or 2^4 or 2^8 or 2^{12})
8) The lateral area of a cuboid is 130 cm^2 and the perimeter of its base is 26 cm, then the height = ………… cm (5 or 6 or 9 or 10)
9) x is greater than or equal to 3, the symbolic expression of this situation is ………… ($x > 3$ or $x < 3$ or $x \le 3$ or $x \ge 3$)
10) A circle its diameter length is 14 cm, then its surface area = ……… cm^2. (where $\pi \simeq \frac{22}{7}$) (49 or 21 or 154 or 7)
11) A cube of total area 150 cm^2 the length of the edge is …… cm. (5 or 25 or 50 or 125)
12) The solution set of equation $2x = 6$ in $\mathbb{N}$ is ………… ({3} or {–3} or {12} or {–12})

2 Complete the following:

13) $\mathbb{Z}^{+} \cap \mathbb{Z}^{-} =$ …………
14) If 3y = 6, then 5y = …………
15) A circle of diameter length 10 cm, then its area = ………… π cm^2.
16) The image of the point (3 , 5) by translation (X + 2, y – 1) is …………
17) If the perimeter of one face of a cube = 24 cm, then its total area = ………… cm^2.
18) The distance between two points A (–3 , 2) and B (2 , 2) = ………… length units.
19) The equation $x^2 + 3 = 4$ is of the ………… degree.
20) When tossing a die once, then probability of getting a number on the upper face more than 5 = …………

3 Answer the following:

21) **Find** the solution set of the following inequality:

$3x - 2 < 7$ where $x \in \mathbb{N}$

....

....

22) Use the properties of addition in $\mathbb{Z}$ to **find** the result of:

(–116) + 190 + 116 (State the property used in each step.)

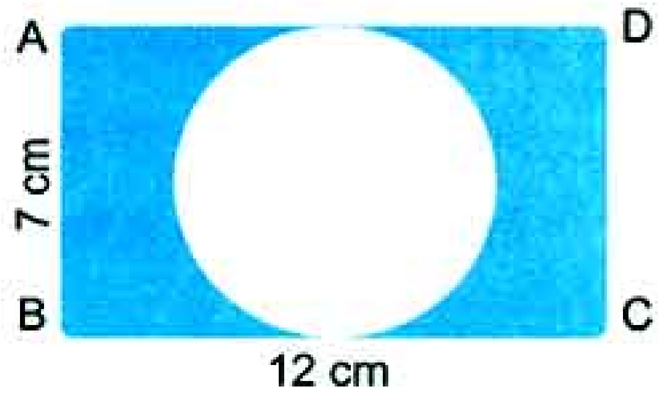
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23) In the opposite figure:

ABCD is a rectangle, its length 12 cm and its width 7 cm. A circle is drawn to touch the sides $\overline{AD}$ and $\overline{BC}$.

Calculate the area of the shaded part. $\left(\text{where } \pi \simeq \frac{22}{7}\right)$



....

....

24) The following table shows the number of students participating in school activities.

Activity	Culture	Sport	Social	Art
Percentage	20%	40%	25%	15%

Represent these data by circular sectors.

25) On a coordinate plane, **draw** line segment $\overline{AB}$ where: A (2 , 3), B (–2 , 0), then **find** its image by translation ($x + 3$, y – 2).

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22 Qena - Qeft Educational Directorate

1 Choose the correct answer:

1) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ .... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}$)

2) $19 - (-11) =$ .... (8 or -8 or 30 or -30)

3) $2^3 + 2^2 =$.......... (2^5 or 4^5 or 12 or 2)

4) If $x + 5 > 2$, then $x >$ .... (-2 or -3 or -5 or -7)

5) If $2x = -6$, then $x \in$ .... ($\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$ or $\mathbb{Z}^-$)

6) The circumference of a circle = ... $\times \pi$ (r or $2r$ or r^2 or $r+2$)

7) The number which satisfies the inequality $x - 2 > 3$ is .... (3 or 4 or 5 or 6)

8) The edge length of a cube is 6 cm, then its lateral area = ... cm^2 (144 or 216 or 24 or 36)

9) The image of the point $(-3 , 1)$ by translation $(3 , 2)$ is .... ($(0 , 1)$ or $(0 , 3)$ or $(3 , 0)$ or $(1 , 0)$)

10) The sum of the measures of all angles accumulated at the centre of a circle equals .... ° (630 or 180 or 306 or 360)

11) If a fair die is thrown once, then the probability of appearing an even number equals .... (zero or 2 or 1 or 0.5)

12) $\{0\}$ .... $\mathbb{N}$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2 Complete the following:

13) $5^7 \div (-5)^6 =$ ....

14) If $4x + 3 = 23$, then $x =$ ....

15) $\left|\frac{5-11}{3}\right| =$ ....

16) $54 \times 117 - 54 \times 17 =$ ...... $\times$ (...... $-$ ......) (Use the distributive property.)

17) The circle whose diameter length is 14 cm, then the surface area = ... cm^2 $\left(\pi \simeq \frac{22}{7}\right)$

18) The total area of a cube = the area of one face $\times$ ....

19) The additive identity is ...., the multiplicative identity is ....

20) The set of counting numbers .... $\mathbb{N}$.

3 Answer the following questions:

21) Find the value of: $\frac{2^5 \times (-2)^3}{2^4 \times (-2)}$

....

....

....

22) Find the S.S. of the inequality: $2x + 9 \leq 1$ and represent it on the number line if

1) $x \in \mathbb{N}$ 2) $x \in \mathbb{Z}$

....

....

....

23) A cuboid, its length is 6 cm, its width is 4 cm and its height is 8 cm, find:

1) Its lateral area. 2) Its total area.

....

....

....

24) A box contains 8 white balls, and 12 red balls where all balls are identical. If a ball is drawn randomly, calculate the probability of the following:

1) Drawing a white ball. 2) Drawing a red ball.

....

....

....

25) Represent the following data by circular sectors.

Farm	First	Second	Third
Percentage	25%	35%	40%

23 Sohag - City Private Schools

1 Choose the correct answer:

1) $\{15\}$ .... $\mathbb{Z}^-$ ($\in$ or $\notin$ or $\subset$ or $\not\subset$)

2) The probability of getting an odd number when tossing a die once = ...
(zero or 2 or 1 or $\frac{1}{2}$)

3) The number which satisfies the equation $x - 2 = 3$ is .... (3 or 4 or 5 or 6)

4) $(-1)^{100} + (-1)^{101} =$ ....
(zero or -2 or -3 or -4)

5) A cube of lateral area 36 cm^2, then its total area = ... cm^2
(36 or 54 or 9 or 45)

6) The image of the point (4 , 6) by translation (x + 1 y – 3) is ....
((5 , 7) or (6 , 5) or (2 , 5) or (5 , 3))

7) The degree of the equation $3x^3 - 3 = 16$ is .... (first or second or third or fourth)

8) If $3x$ = zero, then x = ... (3 or zero or 1 or -3)

9) $\mathbb{Z}^+ - \mathbb{Z}^- =$ .... ($\mathbb{Z}$ or $\mathbb{N}$ or $\varnothing$ or $\mathbb{Z}^+$)

10) The multiplicative identity in $\mathbb{Z}$ is .... (zero or 1 or -1 or 2)

11) If the diameter of a circle = 14 cm, then its area = ... cm^2 $(\pi \simeq \frac{22}{7})$
(144 or 451 or 154 or 44)

12) When tossing a die once, then the probability of getting number 3 = ...
(zero or $\frac{3}{6}$ or $\frac{1}{2}$ or $\frac{1}{6}$)

2 Complete the following:

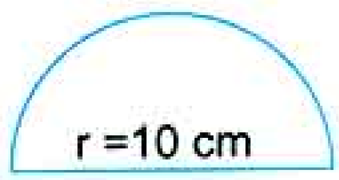
13) The probability of getting a tail when tossing a coin once = ...

14) $(-3) + |-3| =$ ....

15) $\frac{6^4 \times 6^5}{6^7} =$ ....

16) If X = (–2 , 1), Y = (–2 , 5), then the length of $\overline{XY}$ = ...

17) The area of the opposite figure = ... $(\pi \simeq 3.14)$



18) The numbers lying between – 5 and 0 are ....

19) $\mathbb{Z}^+ \cup \{0\} =$ ....

20) The greatest negative integer is ....

3 Answer the following:

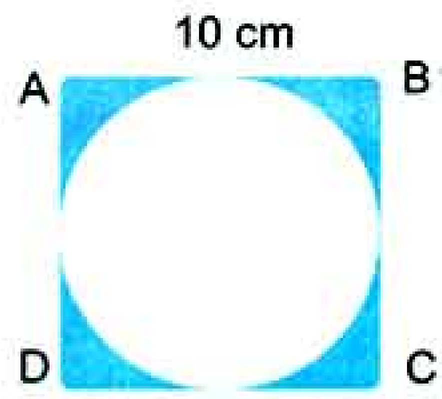
21) Find the solution set of $3x + 1 > -5$ (where $x \in \mathbb{Z}$)

....

....

....

22) In the opposite figure if ABCD is a square whose length = 10 cm, calculate the area of the shaded part.



....

....

....

....

23) A box without a lid is in the shape of a cuboid, its length is 16 cm, its width is 7 cm and its height is 19 cm. Calculate its lateral area.

....

....

....

24) By using the distribution property, find: $(-11) \times [5 + (-3)]$

....

....

....

25) The following table shows the percentage of the favourite sports for your class students:

Favourite sports	Football	Volleyball	Basketball	Ping-pong
Percentage	40%	20%	10%	30%

Represent these data by circular sectors.

24 Luxor - Al-Salam Language School

1 Choose the correct answer:

1) When tossing a coin once, then the probability of getting a head is ....
(0 or 2 or 1 or 0.5)

2) $(-19)^0 + (19)^0 =$ .... (−1 or zero or 1 or 2)

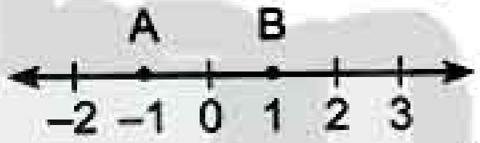
3) The image of the point (3 , 5) by translation (2 , −1) is .... ((2 , 6) or (5 , 4) or (1 , 4) or (1 , 6))

4) The equation: $x^2 + 3 = 4$ is of the .... degree. (first or second or third or fourth)

5) The smallest positive integer is .... (0 or 1 or −1 or 2)

6) The perimeter of the base of a cuboid is 10 cm, its height is 4 cm its lateral area = ... cm^2. (30 or 40 or 50 or 60)

7) If $x + 2 = |-5|$, then $x =$ .... (−7 or 7 or 3 or −3)

8) The distance between the point A and B = ... 

(2 or 3 or 4 or 5)

9) −7 .... 2 (> or < or = or ≤)

10) The solution set of the equation: $x + 2 = -5$ in $\mathbb{Z}$ is {..........} (−3 or −7 or −8 or −9)

11) The number which satisfies the inequality: $x < -1$ is .... (0 or 1 or 3 or −2)

12) The sum of measures of all the central angles of the sectors about the centre of the circle = ...°. (90 or 180 or 270 or 360)

2 Complete the following:

13) $\mathbb{Z}^+ \cap \mathbb{Z}^- =$ ....

14) If the sum of edges of a cube is 48 cm, then its edge length = ... cm

15) Probability of the impossible event = ...

16) If $x + 2 > 5$, then $x >$ ....

17) The lateral area of a cuboid = perimeter of a base × ....

18) The solution set of the equation: $x + 2 = 6$ in $\mathbb{N}$ = {..............}

19) The image of the point (.............. , ...) by translation (3 , 1) is (5 , 3).

20) Area of the circle = ...

3 Answer the following:

21) **Find** the result in the simplest form: $\frac{2^3 \times 2^4}{2^7}$

....

....

....

22) **Find** the solution set of the following inequality: $2x + 1 \geq 5$ in $\mathbb{Z}$.

....

....

....

23) A circle of diameter 14 cm, **calculate** its area. $\left(\pi \simeq \frac{22}{7}\right)$

....

....

....

24) The following table represents the percentages of the production of three factories of washing machines:

Factory	First	Second	Third
Percentage	25%	25%	50%

Represent these data by pie charts.

Answers of Model Tests from the School Book

Model Test 1

1. 1) 0 **2)** (–3 , 0) **3)** ⊂ **4)** 0

2. 1) ∈ **2)** –4 **3)** 6 **4)** $\frac{8}{16} = \frac{1}{2}$

3. a) –17 **b)** $x \in \{5, 6, 7, ...\}$

4. a) Area of one face = 10 × 7 = 70 cm^2

The lateral surface = 70 × 4 =280 cm^2

b) The circumference = 2 π r = 88

$\therefore 2 \times \frac{22}{7} \times r = 88 \Rightarrow r = 88 \times \frac{7}{44} = 14$ cm

The area of the circle = $(14)^2 \times \frac{22}{7} = 616$ cm^2

5. a) $3x + 9 = 3 \Rightarrow 3x = 3 - 9 = -6$ $\therefore x = -2$

b) Left to the student.

Model Test 2

1. 1) $\mathbb{Z}^-$ **2)** 2 r **3)** $\frac{1}{6}$ **4)** –1

2. 1) $\frac{2^8}{2^2} = 2^6$ **2)** ⊂ **3)** 5 **4)** $\frac{1}{3}$

3. 1) –32 **2)** {5 , 6 , 7 , 8 , ...}



4. a) $2x + 9 = 5$ $2x = 5 - 9$

$x = -2$ Solution set = {–2}

b) Area of the rectangle ABCD = L × W = 8 × 7

= 56 cm^2

Area of the circle = $\pi r^2 = \frac{22}{7} \times \left(\frac{7}{2}\right)^2 = 38.5$ cm^2

Area of the shaded part = 56 – 38.5 = 17.5 cm^2

5. Left to the student.

Model 3

1. 1) 3 **2)** zero **3)** 1 **4)** 40

2. 1) 27 **2)** r^2 **3)** N **4)** $\frac{1}{2}$

3. 1) ✓ **2)** ✗ **3)** ✗ **4)** ✓

4. 1) 360° **2)** ∈ **3)** {0 , 1 , 2} **4)** (4,4)

5. a) The total area = 6 × 4 × 4 = 96 cm^2

The lateral area = 4 × 4 × 4 = 64 cm^2

b) $\frac{2^3 \times 2^4}{2^5} = \frac{2^{3+4}}{2^5} = \frac{2^7}{2^5} = 2^{7-5} = 2^2 = 4$

Answers of some School Examinations

1 Cairo – El-Sahel Educational Zone

1. 1) ∅ **2)** $-(3)^2$ **3)** second **4)** $\frac{1}{6}$

5) –24 **6)** 4 **7)** 25 **8)** 1

9) (–2 , –7) **10)** 2^5 **11)** 0.2 **12)** {4}

2. 13) 54 cm^2 **14)** $\mathbb{Z}^- \cup \{0\}$

15) (–1 , 2) **16)** 18

17) 360 **18)** 50 **19)** $x < -3$ **20)** 10

3. 21) $3x - 7 = 11$, $x \in \mathbb{Z}$

$3x = 11 + 7 = 18$

$\frac{3x}{3} = \frac{18}{3} \Longrightarrow x = 6$

S.S. = {6}

22) The area of a circle = πr^2

$= \frac{22}{7} \times 7 \times 7 = 154$ cm^2

The area of each sector = 154 ÷ 7 = 22 cm^2

23) $x - 2 \le 3$ where $x \in N$

$x \le 3 + 2 \Longrightarrow x \le 5$

S.S. = {5 , 4 , 3 , 2 , 1 , 0}

24) The side length of the cube = 28 ÷ 4 = 7 cm.

a) L.S.A. = perimeter of base x height

= 28 × 7 = 196 cm^2

b) T.S.A. = 6 × 7 × 7 = 294 cm^2

25) The measure of the angle which represents

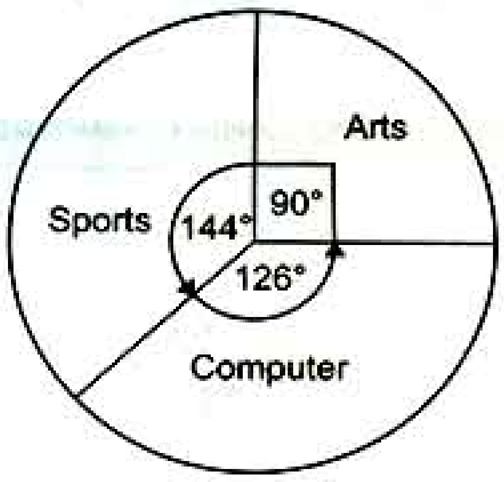
arts = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents

sports = $\frac{40}{100} \times 360° = 144°$

The measure of the angle which represents

computer = $\frac{35}{100} \times 360° = 126°$



2 Cairo - Helioplis Directorate - St. Joseph's School

1. 1) $\mathbb{N}$ 2) 3^2 3) $(-3 , 0)$ 4) 120°
5) -1 6) > 7) $\frac{1}{6}$ 8) -1
9) 400 10) $(-1)^7$ 11) $\in$ 12) $2 \pi r$

2. 13) height 14) -1 15) zero
16) 3 17) 6 18) commutative
19) $\{-1 , 0 , 1\}$ 20) $(-3 , 0)$

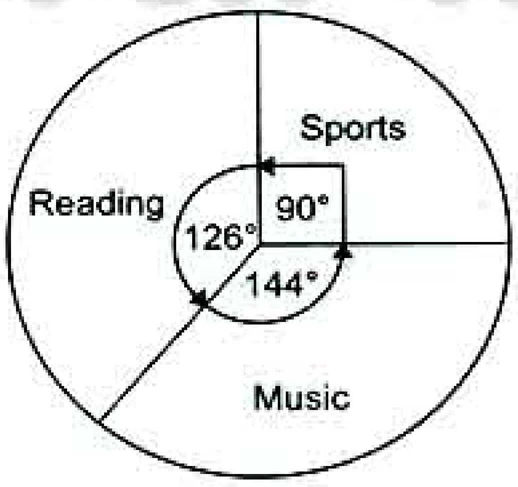
3. 21) $2x + 11 = 3 \Rightarrow 2x = 3 - 11$
Then $\frac{2x}{2} = \frac{-8}{2}$ so $x = -4$
The S.S. = $\{-4\}$

22) $37 \times 17 + 37 \times (-17)$
$= 37 \times [17 + (-17)] = 37 \times 0 = 0$

23) Area of carpet $= \pi r^2 = \frac{22}{7} \times (3.5)^2 = 38.5 \text{ m}^2$
The price of the carpet = 38.5×100
= 3850 pounds

24) The total area of the cuboid
= lateral area + area of two bases
$= (3 + 2) \times 2 \times 6 + 2 \times 3 \times 2$
$= 60 + 12 = 72 \text{ cm}^2$

25) The measure of the angle of the sector that represents sports $= \frac{25}{100} \times 360° = 90°$
The measure of the angle of the sector that represents reading $= \frac{35}{100} \times 360° = 126°$
The measure of the angle of the sector that represents music $= \frac{40}{100} \times 360° = 144°$



3 Cairo - Rod El-Farag Educational Zone

1. 1) $\notin$ 2) 5 3) 16 4) 9
5) zero 6) -3 7) 54 8) zero
9) 4 10) 9^2 11) third 12) 90°

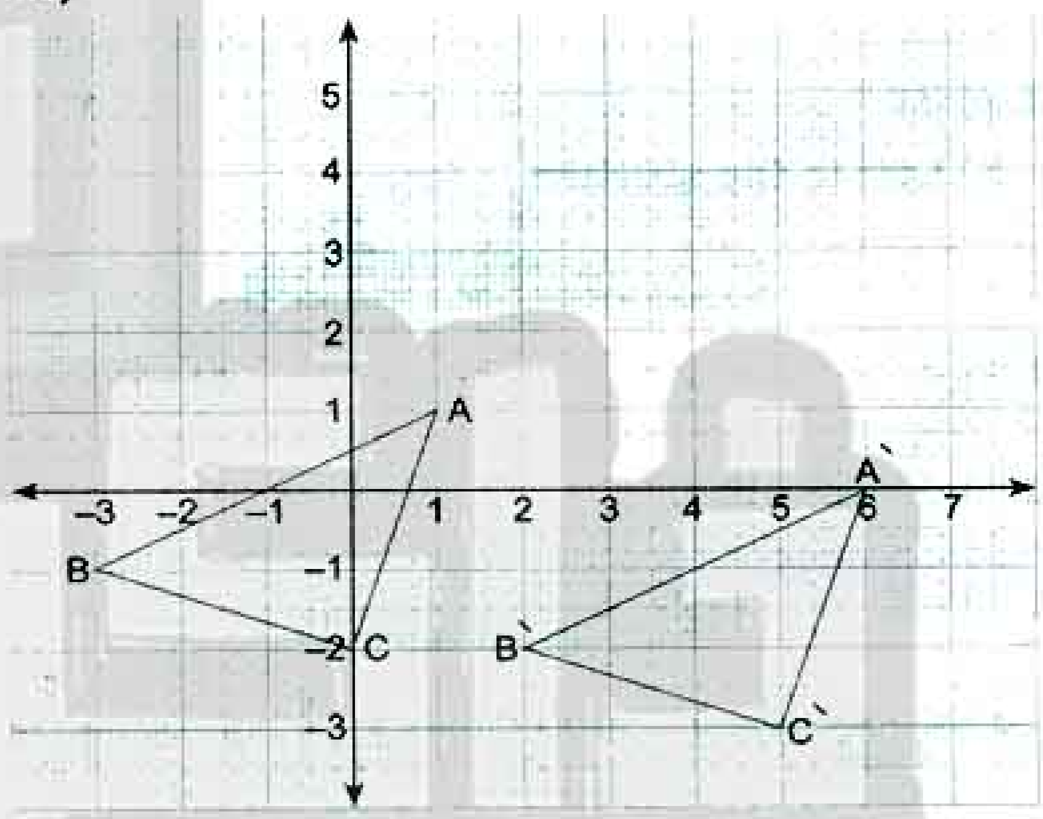
2. 13) $(0 , 1)$ 14) $\varnothing$ 15) $\frac{1}{6}$ 16) height
17) $(-2)^2$ 18) 64 19) -8 20) 6

3. 21) $32 \times (117 - 17) = 32 \times 100 = 3200$

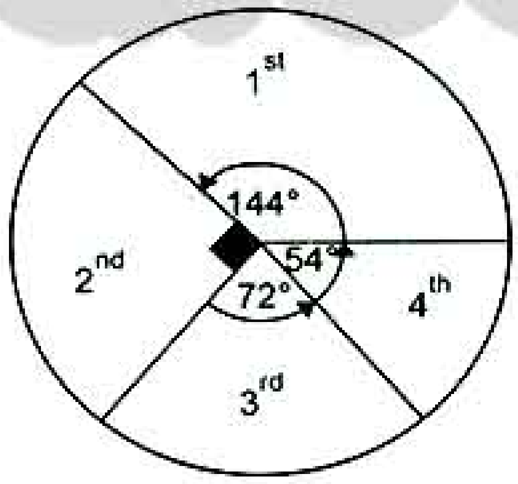
22) $2x - 2 \geq 4$ $2x \geq 4 + 2$
$2x \geq 6$ then $x \geq \frac{6}{2}$
$x \geq 3$
then the S.S. = $\{3 , 4 , 5 , ...\}$

23) The lateral area = perimeter of base × height
$= 10 \times 4 \times 6 = 240$ cm.
the total area = 2 area of base + area lateral area
$2 \times 10 \times 10 + 240 = 440 \text{ cm}^2$

24)



25) $1^{st} = \frac{40}{100} \times 360 = 144°$ $2^{nd} = \frac{25}{100} \times 360 = 90°$
$3^{rd} = \frac{20}{100} \times 360 = 72°$ $4^{th} = \frac{15}{100} \times 360 = 54°$



4 Cairo - El Zeitoun Directorate - Special Republic School

1. 1) < 2) $\notin$ 3) 0 4) 1
5) $\{-2\}$ 6) -3 7) $\in$ 8) $(6 , -3)$
9) 25 10) L. area = 10 × 4 = 40
11) 0.3 12) 0

2. 13) {0} **14)** Z^+ **15)** 14 cm **16)** $2^4 = 16$

17) 10 cm **18)** 5 **19)** 1 **20)** 54 cm^2

---

3. 21) 3 × [(–2) + 5] = 3 × 3 = 9

22) 3 x = –15

x = –5 S.S. = ∅

23) Lateral area = base P × h = (12 × 4) × 12 = 576 cm^2

T.S. area = 576 + (2 × 12 × 12) = 864 cm^2

24) Shaded part = area of square – area of circle

= (14 × 14) – ($\frac{22}{7}$ × 7 × 7)

196 – 154 = 42 cm^2

25) Cultural activities = $\frac{25}{100}$ × 360 = 90°

Sport = $\frac{50}{100}$ × 360 = 180°

Social activities = $\frac{15}{100}$ × 360 = 54°

Arts = $\frac{10}{100}$ × 360 = 36°



5 Cairo - El-Marg Educational Directorate - El-Shams Language School

1. 1) 0.5 **2)** 54 **3)** ∅ **4)** 30°

5) 1 **6)** $\frac{1}{2}$ **7)** 6 **8)** 1

9) ∈ **10)** (–3 , 5) **11)** 314 **12)** 20

13) 5^2 **14)** ⊂

---

2. 15) commutative **16)** 0 **17)** 5

18) 256 **19)** second **20)** –2 **21)** 1

22) $\frac{2}{7}$

---

3. 23) a) {–5}

b) 3 x ≤ 9

x ≤ 3 {3 , 2 , 1 , 0 , –1, ...}

24) Lateral area = base perimeter × height

= 20 × 8 = 160 cm^2

Total S. area = 2 × base area + L. area

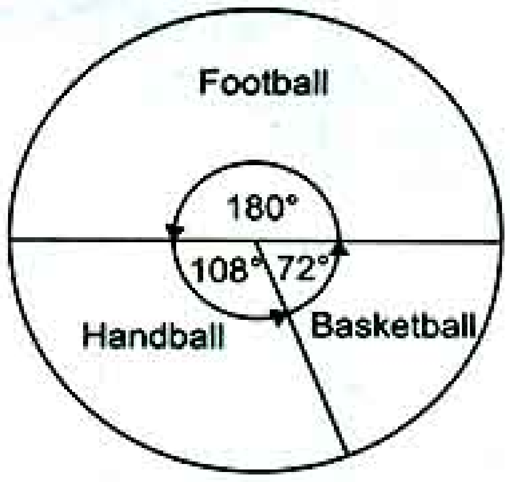
= (24 × 2) + 160

= 208 cm^2

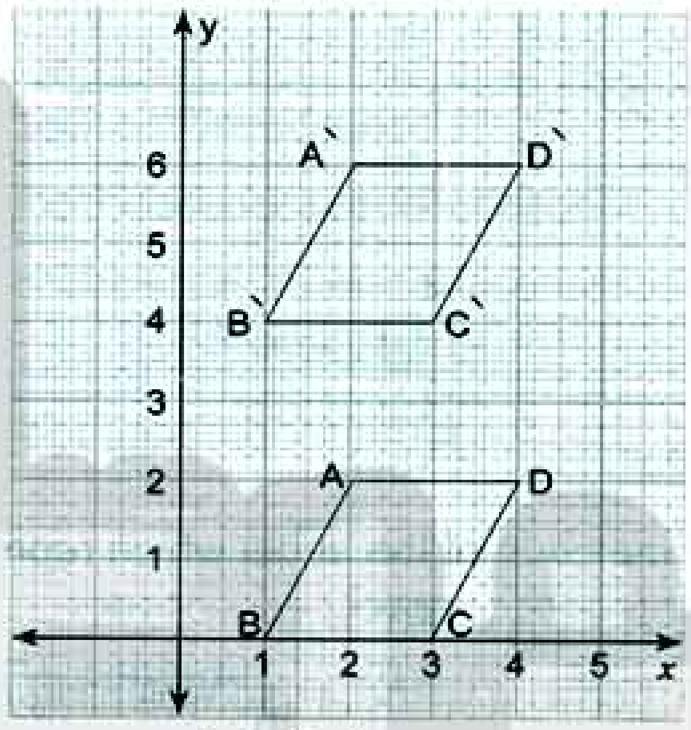
25) Football = $\frac{50}{100}$ × 360 = 180°

Handball = $\frac{30}{100}$ × 360 = 108°

Basketball = $\frac{20}{100}$ × 360 = 72°



26)



The figure A\`B\`C\`D\` is the image of ABCD

ABCD is a parallelogram.

6 Giza - 6 October Directorate

1. 1) –1 **2)** ∉ **3)** 2 **4)** (–3 , 0)

5) Z **6)** 216 **7)** $\frac{1}{6}$ **8)** 314

9) 3 **10)** 14 **11)** 10 **12)** 180°

---

2. 13) zero **14)** ∅ **15)** 3200 **16)** 96

17) the centre **18)** {3 , 2 , 1 , 0}

19) {–3} **20)** 2(L + w) × h

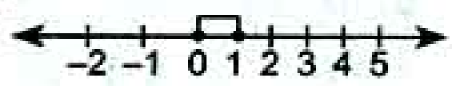
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3. 21) a) (–5) × [2] = –10 **b)** $7^{4+5-7} = 7^2 = 49$

22) 2 x – 3 < 1 x ∈ N

2 x < 1 + 3 $\frac{2x}{2} < \frac{4}{2} \Longrightarrow x < 2$

S.S. = {0 , 1}

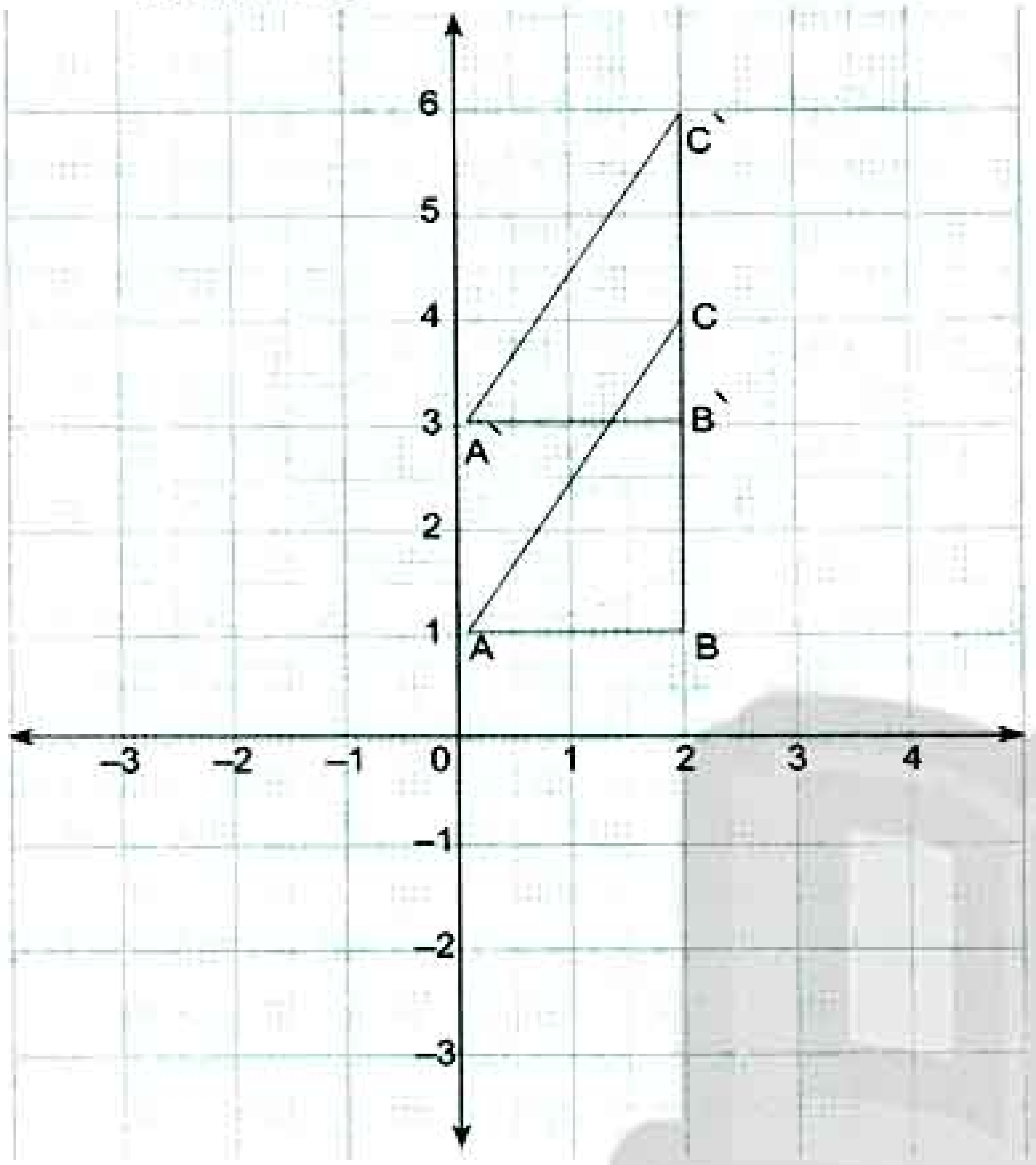


23) x + 4 > 5 x ∈ Z

x > 5 – 4 ⟹ x > 1 S.S. = {2 , 3 , ...}

24) a) The length of $\overline{BC}$ = 3 units length.

b) The image of Δ ABC by translation (0 , 2) is Δ A\`B\`C\`

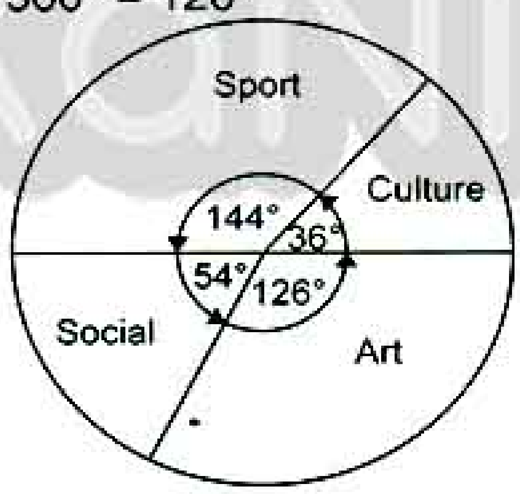


25) The measure of the angle which represents culture = $\frac{10}{100} \times 360° = 36°$

The measure of the angle which represents sport = $\frac{40}{100} \times 360° = 144°$

The measure of the angle which represents social = $\frac{15}{100} \times 360° = 54°$

The measure of the angle which represents art = $\frac{35}{100} \times 360° = 126°$



7 Giza - Al-Haram Educational Area - Sorour Language School

1. 1) $\varnothing$ **2)** –1 **3)** –2 **4)** 3^{rd}

5) – 4 **6)** (0 , 0) **7)** 1 **8)** zero

9) $\frac{1}{2}$ **10)** 6 **11)** 120° **12)** 54

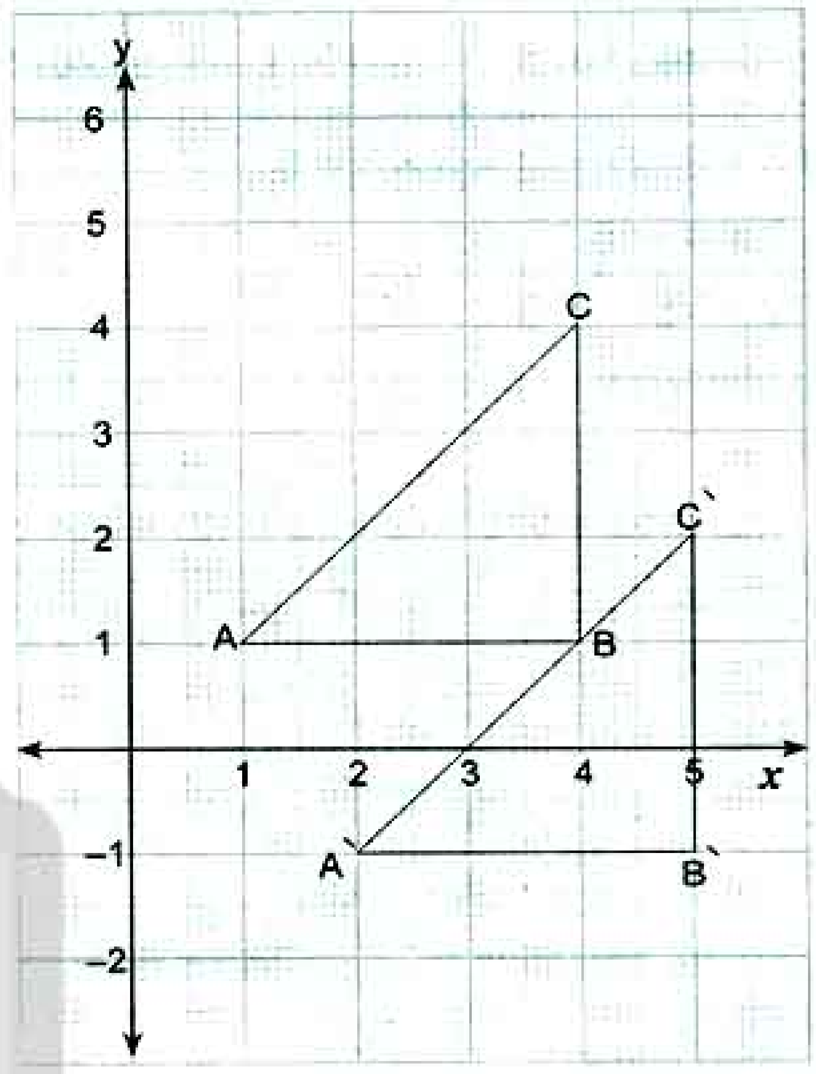
2. 13) 18 14) 7 15) 6

16) L.S.A. = (3 + 4) × 2 × 5 = 70 **17)** 7

18) zero **19)** 14 **20)** 4

3. 21) $7^{5+1-4} = 7^2 = 49$

22)



23) The area of the figure = $\frac{1}{2} \times \frac{22}{7} \times (7)^2 = 77$ cm²

24) $2x + 9 = 13$

a) $2x = 13 - 9$

$\frac{2x}{2} = \frac{4}{2}$ then $x = 2$ The S.S. = {2}

b) $x - 1 < 2$ $x < 2 + 1$

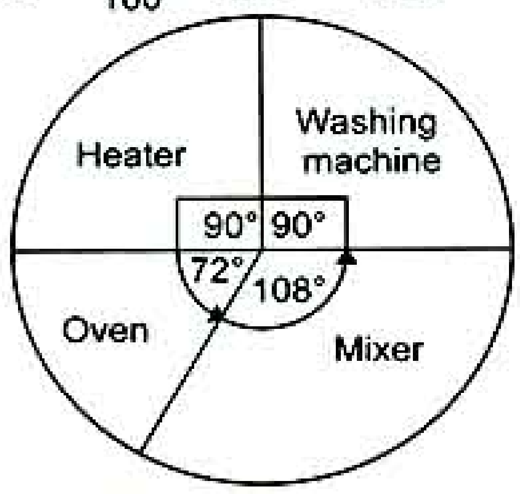
then $x < 3$ S.S. in N = {2 , 1 , 0}

25) The measure of the angle of the sector which represents washing machine = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the heater = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the oven = $\frac{20}{100} \times 360° = 72°$

The measure of the angle which represents the mixer = $\frac{30}{100} \times 360° = 108°$



8 Giza - Orman Private School - Maths Supervision

1. 1) $\mathbb{Z}^-$ **2)** > **3)** The side length

4) 314 **5)** –2 **6)** 10 **7)** zero

8) –1 **9)** (–3 , 0) **10)** 0 **11)** 3

12) third **13)** 3.6 **14)** $\frac{1}{3}$

2. 15) $2 \times (L + W)$ **16)** $\varnothing$ **17)** 1

18) zero **19)** 4 **20)** second

3. 21) $(-2)^{7+5-9} = (-2)^3 = -8$

22) $2x - 3 = -9$

$2x = -9 + 3$ $\frac{2x}{2} = \frac{-6}{2}$ then $x = -3$

23) $2x - 1 \le 5$ s.s. = {–3}

$2x \le 5 + 1$, then $\frac{2x}{2} \le \frac{6}{2} \Rightarrow x \le 3$

The S.S. = {3 , 2 , 1 , 0}

24) The circumference = $2 \pi r = 88$

Then $\frac{2 \times 22}{7} r = 88$

$r = \frac{88 \times 7}{2 \times 22} = 14$ cm

The area of the circle = $\pi r^2 = \frac{22}{7} \times (14)^2 = 616$ cm^2

25) The area of two bases = 132 – 112 = 20 cm^2

Then the area of base = $\frac{20}{2} = 10$ cm^2

26) The angle of sector of the first

$= \frac{15}{100} \times 360° = 54°$

The measure of the angle of sector of the second

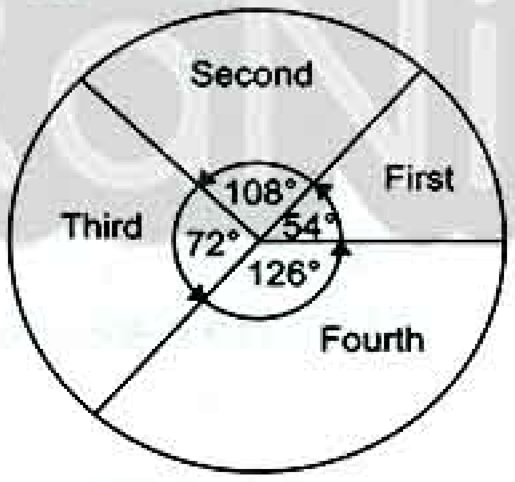
$= \frac{30}{100} \times 360° = 108°$

The measure of the angle of sector of the third

$= \frac{20}{100} \times 360° = 72°$

The measure of the angle of the fourth

$= \frac{35}{100} \times 360° = 126°$



9 Alexandria - Educational Zone - Mathematics Inspection

1. 1) $x = 8$ **2)** $\frac{5}{6}$ **3)** 3000 **4)** 5

5) {–3} **6)** $\frac{r^2}{2}$ **7)** 3 **8)** (5 , –1)

2. 9) (–3)3 **10)** 12 or (–12) **11)** {2}

12) 3 : 2 **13)** ∈ **14)** Z^- **15)** 0.77

16) – **17)** zero **18)** 154 cm^2 **19)** –20

20) 5

3. 21) S.S. = {2 , 3 , 1 , 0 , –1 , ...}



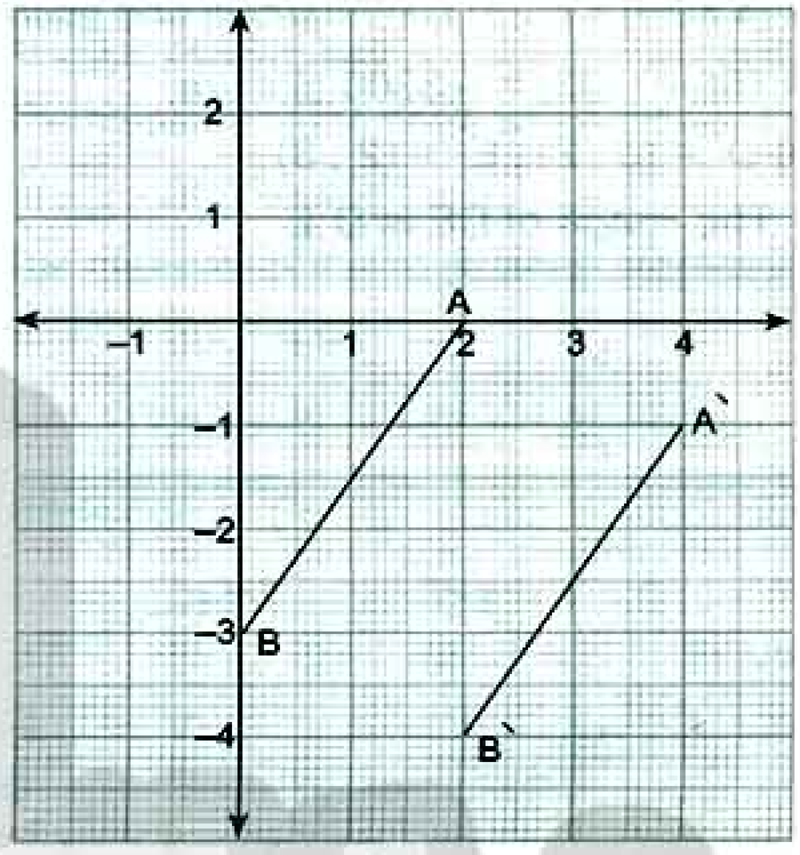
22) $-(a + b)^c = -(-2 - 3)^0 = -(-5)^0 = -1$

23) The area of one face = 468 ÷ 6 = 78 cm^2

The L.S.A. = 4 × 78 = 312 cm^2

24) $\overline{A`} = (4 , -1)$, $B` = (2 , -4)$

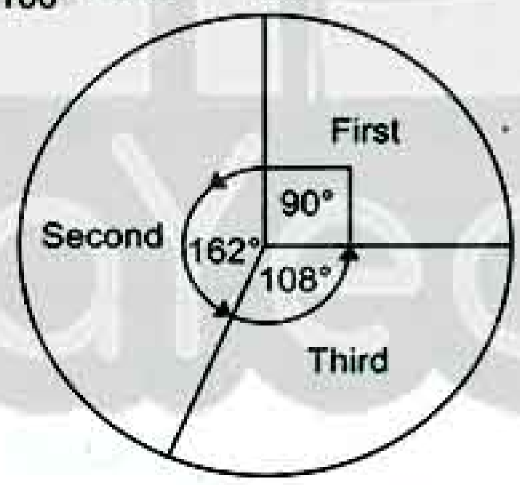
$\overline{A`B`}$ is the image of $\overline{AB}$



25)

Farm	First	Second	Third
Percentage	25%	45%	30%

The measure of the angle that represents the first = $\frac{25}{100} \times 360° = 90°$



The measure of the angle that represents the second = $\frac{45}{100} \times 360° = 162°$

The measure of the angle that represents the third = $\frac{30}{100} \times 360° = 108°$

10 Alexandria - El Montazah Educational Zone - Maths Supervision

1. 1) zero **2)** (1 , –3) **3)** ∈ **4)** $x \le 2$

5) $\frac{1}{6}$ **6)** 49 π cm^2 **7)** zero **8)** –1

9) $\varnothing$ **10)** second **11)** 90° **12)** <

2. 13) 2 r **14)** 6 **15)** 4 **16)** 15

17) 400 **18)** $\frac{1}{2}$ **19)** {0} **20)** (–1 , 2)

3. 21) $2x - 1 = -3$

$2x = -3 + 1 = -2$

$\frac{2x}{2} = \frac{-2}{2} \Rightarrow x = -1$

S.S. {−1}

22) The area of one face = 36 ÷ 4 = 9 cm^2

The T.S.A. = 9 × 6 = 54 cm^2

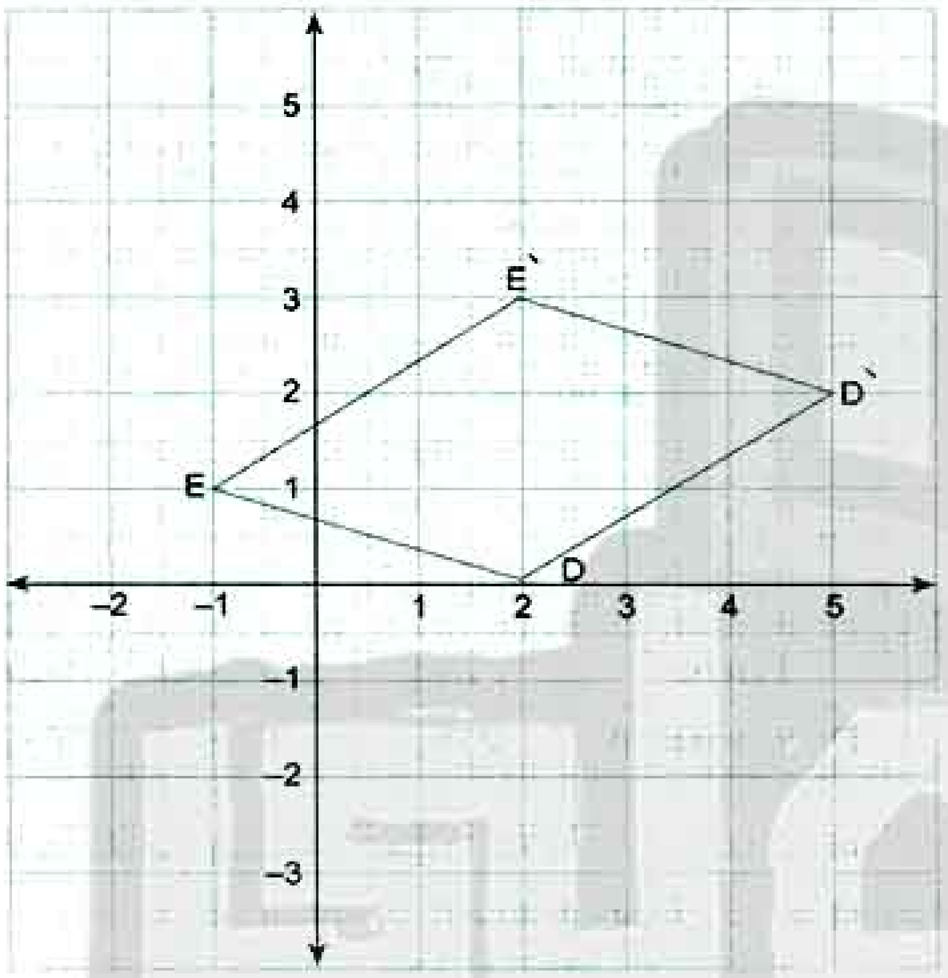
23) 4 × (−33) × 25

= (4 × 25) × (−33) commutative and associative

= 100 × (−33) = − 3300 closure

24) a) D` = (5 , 2) , E` = (2 , 3)

The image of $\overline{DE}$ is $\overline{D`E`}$

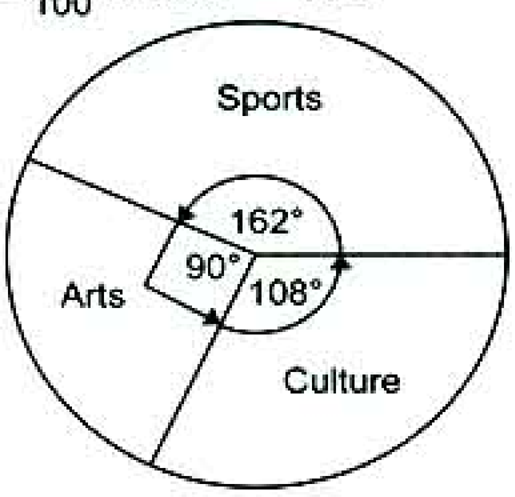


b) The name of the shape DD`EE` is a parallelogram.

25) The measure of the angle which represents sports $= \frac{45}{100} \times 360° = 162°$

The measure of the angle which represents arts $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents culture $= \frac{30}{100} \times 360° = 108°$



11 Alexandria - East Educational Directorate - Maths Inspectorate

1. 1) $\mathbb{Z}^-$ 2) ⊂ 3) −3 4) =
5) < 6) 5 7) −1 8) 144
9) (−2 , −7) 10) 4 11) 360° 12) zero

2. 13) 12 14) 7 15) {2 , 1 , 0}
16) (3 , 5) 17) 6 18) 150 19) 40
20) $\frac{1}{6}$

3. 21) The order is: −15 , −9 , |−9| , 16 , 17

22) $(-5)^{3+2-4} = (-5)^1 = -5$

23) The area of the circle = πr^2

$= \frac{\overset{11}{\cancel{22}}}{\cancel{7}} \times \frac{\cancel{7}}{\cancel{2}} \times \frac{7}{2} = 38.5\ cm^2$

12 Menofia - El-Sadat Directorate - Mathematics Supervision

1. 1) $x = 9$ 2) (5 , −5) 3) > 4) 0.5
5) N 6) 2 : 3 7) 10 8) ⊄
9) 1 10) 90° 11) 4 12) −2

2. 13) 3 14) 6 15) Second
16) zero 17) 180° 18) {3 , 2 , 1 , 0}
19) − 25 20) ∅

3. 21) $2^4 \times (-2)^{7-5-2}$

$2^4 \times (-2)^0 = 2^4 \times 1 = 16$

22) L.S.A. = perimeter of base × h

= 2 (16 + 7) × 9

= 46 × 9 = 414 cm^2

T.S.A. = L.S.A. + area of one base

= 414 + (16 × 7)

414 + 112 = 526 cm^2

23) Area of the shaded part

= area of circle − area of square

$= \pi r^2 - \frac{d^2}{2} = \frac{22}{7}(7)^2 - \frac{(14)^2}{2} = 154 - 98 = 56\ cm^2$

24) a) $x + 8 = 19$

$x = 19 - 8 = 11$ S.S. = {11}

b) $1 - 2x > 5$ $-2x > 5 - 1$

$\frac{-2x}{-2} > \frac{4}{-2}$

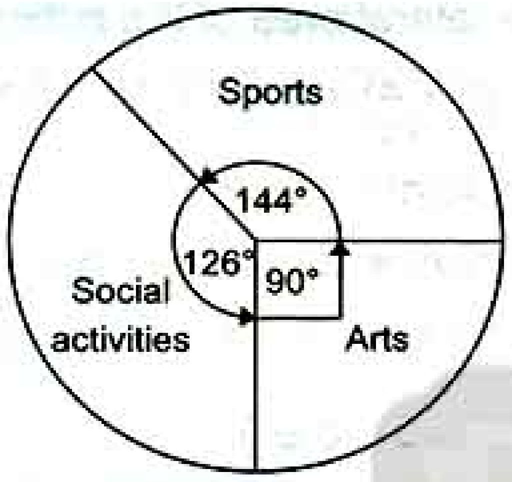
$x < -2$

S.S. = {−3, −4, ...}.

25) The measure of the angle which represents sports $= \frac{40}{100} \times 360 = 144°$

The measure of the angle which represents social activities $= \frac{35}{100} \times 360° = 126°$

The measure of the angle which represents arts $= \frac{25}{100} \times 360° = 90°$



13 Gharbia - Educational Zone - Maths Inspectorate

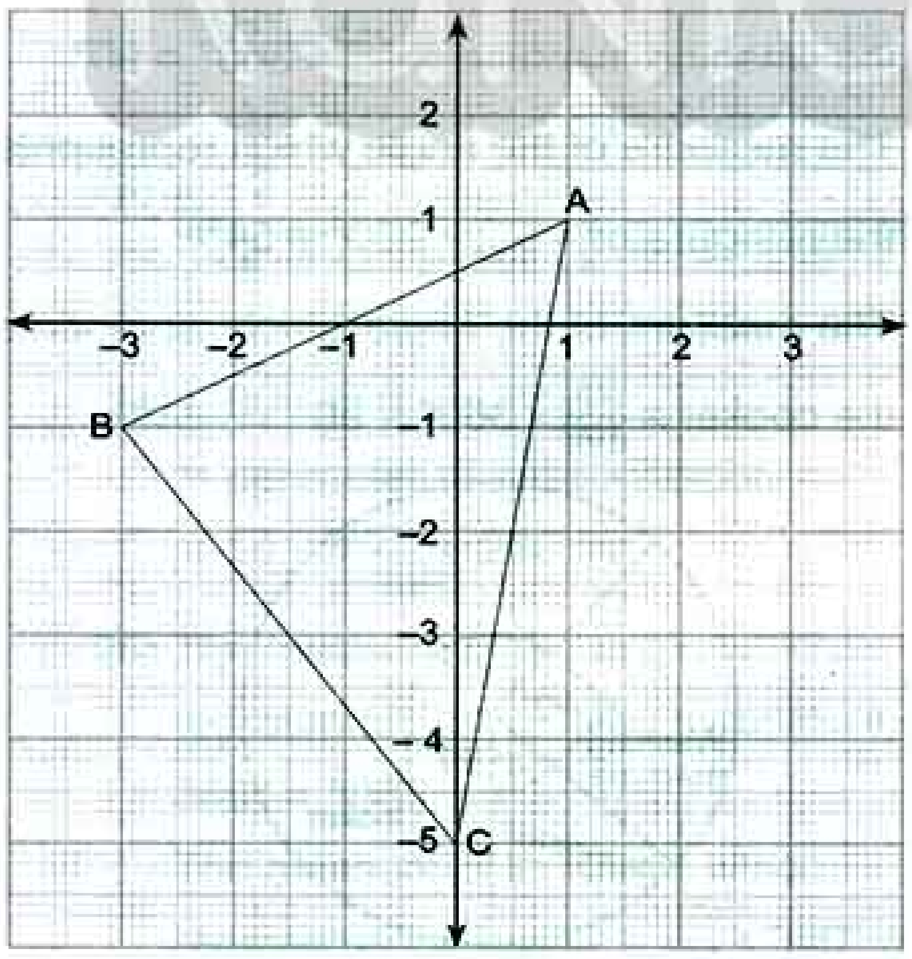
1. **1)** $\mathbb{Z}^-$ **2)** third(3^{rd}) **3)** (–5 , –1) **4)** $x + 1$
5) 2 **6)** 16 π **7)** ∅ **8)** $\frac{3}{20}$
9) |–5| **10)** 0.3 **11)** $\frac{1}{6}$ **12)** $\mathbb{Z}^+$

2. **13)** 4 × the area of one face
14) 12 **15)** (1 , 0) **16)** 314 **17)** – 4
18) 160 **19)** 5 **20)** 16

3. **21)** $8^{3+5-8} = 8^0 = 1$

22) The area of the shaded part
$= 8 \times 7 - \frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} = 56 - 38.5 = 17.5 \text{ cm}^2$

23)



24) **1)** The probability of getting a number greater than 6 = zero

2) the probability of getting a prime number $= \frac{1}{2}$

25) The measure of the angle which represents the 1st $= \frac{10}{100} \times 360° = 36°$

The measure of the angle which represents the 2nd $= \frac{35}{100} \times 360° = 126°$

The measure of the angle which represents the 3rd $= \frac{30}{100} \times 360° = 108°$

The measure of the angle which represents the 4th $= \frac{25}{100} \times 360° = 90°$

The drawing is left to the student.

14 Kafr El-Sheikh - Mathematics Supervision

1. **1)** 0 **2)** 0.5 **3)** $x > 7 - 5$
4) – 45 **5)** (2 , 2) **6)** –1 **7)** 484
8) – 4 **9)** 1 **10)** ⊂ **11)** third
12) 6

2. 13) zero 14) r^2 15) 216
16) –2 **17)** $\frac{8}{20} = \frac{2}{5}$ **18)** (5 , –6)
19) 20 **20)** height

3. **21)** 63 × (85 + 15) = 63 × 100 = 6300

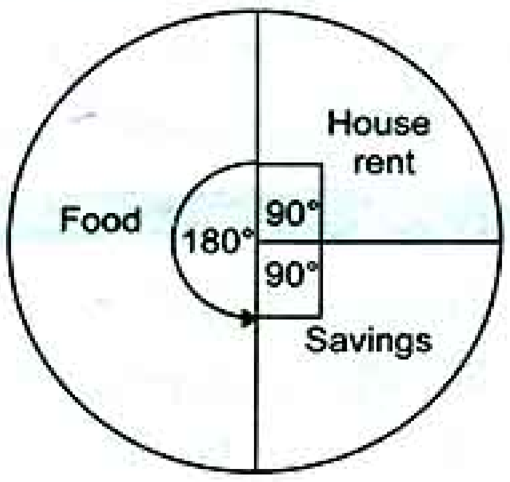
22) $3x + 2 \le 11$ $\quad x \in \mathbb{Z}$
$3x \le 11 - 2$ $\quad \frac{3x}{3} \le \frac{9}{3} \Longrightarrow x \le 3$
S.S. = {3 , 2 , 1 , 0 , –1 , –2 , ...}

23) L.S.A. = 4 × 9 × 20 = 720 cm^2
T.S.A. = 720 + 2 × 9 × 9 = 720 + 162 = 882 cm^2

24) The measure of the angle that represents the rent of the house $= \frac{25}{100} \times 360° = 90°$

The measure of the angle that represents food $= \frac{50}{100} \times 360° = 180°$

The measure of the angle that represents savings $= \frac{25}{100} \times 360° = 90°$



25) The area of the circle = πr^2

$= 3.14 \times 6 \times 6 = 113.04 \text{ cm}^2$

15 Damietta - Directorate of Official Language Schools

1. 1) $\mathbb{N}$ 2) third 3) 16 4) (−2 , 3)
5) $\frac{1}{2}$ 6) zero 7) − 4 8) 256
9) 120 10) $\mathbb{Z}^-$ 11) 1 12) {2}

2. 13) $\frac{(-2)^{7+5}}{2^{10}} = \frac{(-2)^{12}}{2^{10}} = 2^{12-10} = 2^2 = 4$
14) 10 15) 6 16) 8 17) $\frac{8}{16} = \frac{1}{2}$
18) 1 19) (−1 , 5) 20) πr^2

3. 21) $3x - 2 \geq 4$

$3x \geq 6 \Rightarrow x \geq 2$

S.S. = {2 , 3 , 4 , ...}

22) 115 + 390 + (−115) = [115 + (−115)] + 390

Commutative and associative property

= 0 + 390 additive inverse = 390 closure

23) The total area of cube = 12 × 12 × 6 = 864 cm^2

24) The area of the circle

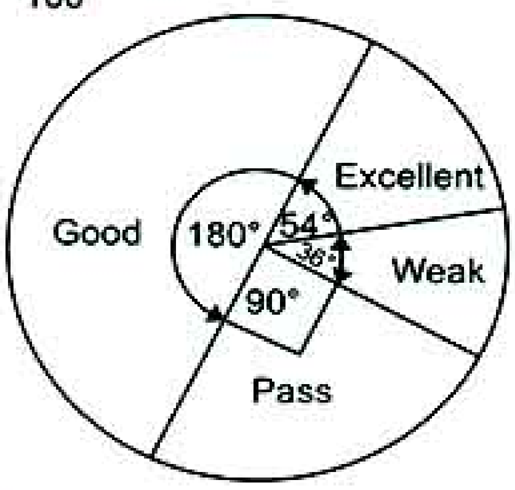
$= \pi r^2 = \frac{22}{7} \times 7 \times 7 = 154 \text{ cm}^2$

25) The measure of the angle which represents excellent = $\frac{15}{100} \times 360° = 54°$

The measure of the angle which represents good = $\frac{50}{100} \times 360° = 180°$

The measure of the angle which represents pass = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents weak = $\frac{10}{100} \times 360° = 36°$



16 Sharkia - Directorate of Education - Mathematics Department

1. 1) zero 2) 3 3) −3 4) $\frac{1}{6}$
5) 3^3 6) {−2} 7) {−5 , −1} 8) ∅
9) 360° 10) −1 11) −6 12) 54

2. 13) (−5) × [7 + (−5)] = (−5) × 2 = −10
14) Second degree 15) 16 16) 2
17) −1 18) −1 19) zero 20) m − n

3. 21) $\frac{2^5 \times (-2)^3}{(-2) \times 2^4} = 2^{5-4} \times (-2)^{3-1} = 2 \times (-2)^2$

$= 2 \times 4 = 8$

22) 1) The lateral area of the cuboid

$= 2(6 + 4) \times 8 = 2 \times 10 \times 8 = 160 \text{ cm}^2$

2) The total surface area

= L.S.A. + area of two bases

$= 160 + 2 \times 6 \times 4 = 160 + 48 = 208 \text{ cm}^2$

23) a) $x + 3 < 5$, $x \in \mathbb{Z}$

$x < 5 - 3$ $x < 2$

Then the S.S. = {1 , 0 , −1 , −2, ...}

b) $2x + 1 = -9$, $x \in \mathbb{Z}$

$2x = -9 - 1$ $\frac{2x}{2} = \frac{-10}{2}$

$x = -5$ The S.S. = {−5}

24) 1) The surface area of the circle M = πr^2

$= \frac{22}{7} \times 14 \times 14 = 616 \text{ cm}^2$

2) The area of one circular sector

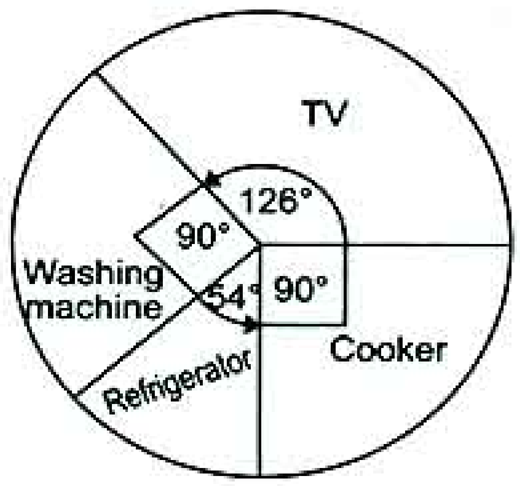
$= 616 \div 8 = 77 \text{ cm}^2$

25) The measure of the angle which represents TV = $\frac{35}{100} \times 360° = 126°$

The measure of the angle which represents the washing machine = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the refrigerator = $\frac{15}{100} \times 360° = 54°$

The measure of the angle which represents the cooker = $\frac{25}{100} \times 360° = 90°$



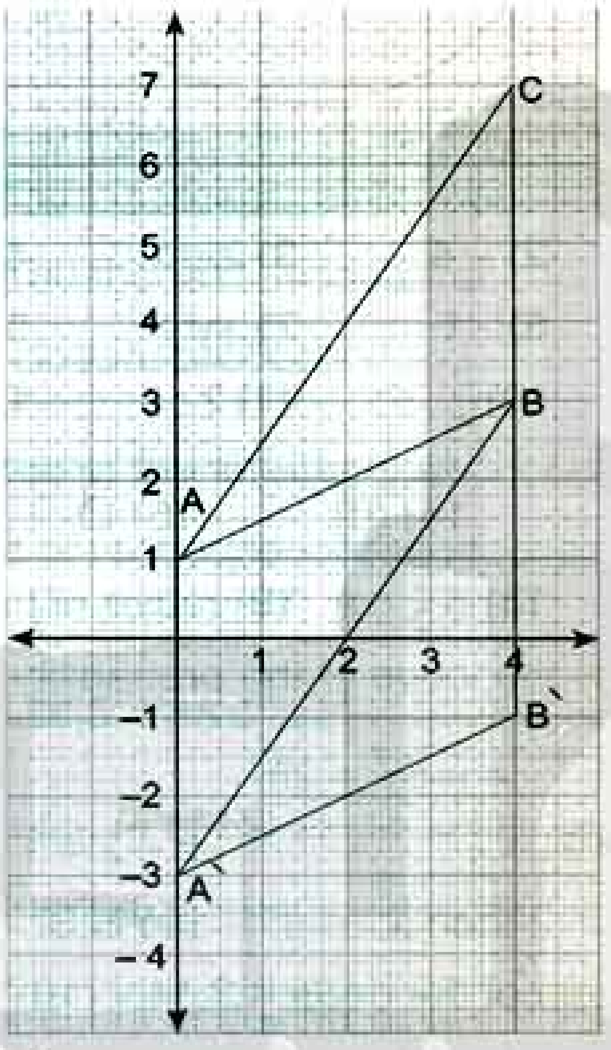
(17) Port Said - Educational Directorate - Mathematics Inspectorate

1. 1) 2r **2)** $\mathbb{Z}^-$ **3)** 6 **4)** zero
5) $\in$ **6)** 2^7 **7)** zero **8)** 3
9) 6 **10)** zero **11)** (3 , 5) **12)** – 4

2. 13) 6 **14)** 40 cm^2 **15)** 1 **16)** 360°
17) r^2 **18)** 5 **19)** $\mathbb{N}$ **20)** 3

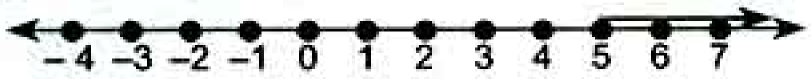
3. 21) $(4 \times 3^2 \times 3^2) - 7 \times 3 = 4 \times 81 - 21$
$= 324 - 21 = 303$

22)



1) 4
2) A` = (0 , –3), B` =(4 , –1)
C` = (4 , 3)
ΔA`B`B is the image of Δ ABC

23) $x - 2 \geq 3 \Rightarrow x \geq 5$



S.S. = {5 , 6 , 7 , ...}

24) L.S.A. of the cuboid
= perimeter of base × height
= 10 × 4 × 7 = 280 cm^2

25) The measure of the angle which represents the washing machine = $\frac{30}{100} \times 360° = 108°$
The measure of the angle which represents the heater = $\frac{15}{100} \times 360° = 54°$
The measure of the angle which represents the oven = $\frac{40}{100} \times 360° = 144°$
The measure of the angle which represents the mixer = $\frac{15}{100} \times 360° = 54°$



(18) Ismailia - Directorate of Education

1. 1) $\mathbb{Z}^-$ **2)** 1 **3)** (5 , 4) **4)** 360°
5) –6 **6)** second **7)** 100 **8)** 5
9) 2 **10)** – 4 **11)** 9 π **12)** 5

2. 13) –1 **14)** $\frac{1}{2}$ **15)** 2 : 3
16) 864 **17)** 6 **18)** 1 **19)** 280
20) 616

3. 21) a) $7^{5+3-6} = 7^2 = 49$

b) 116 + 190 + (–116) = [116 + (–116)] + 190
commutative and associative property
= zero + 190 (additive identity) = 190 closure

22) $2x + 1 = -13$ $2x = -13 - 1$
$2x = -14$ $x = \frac{-14}{2} = -7$
The S.S. = {–7}

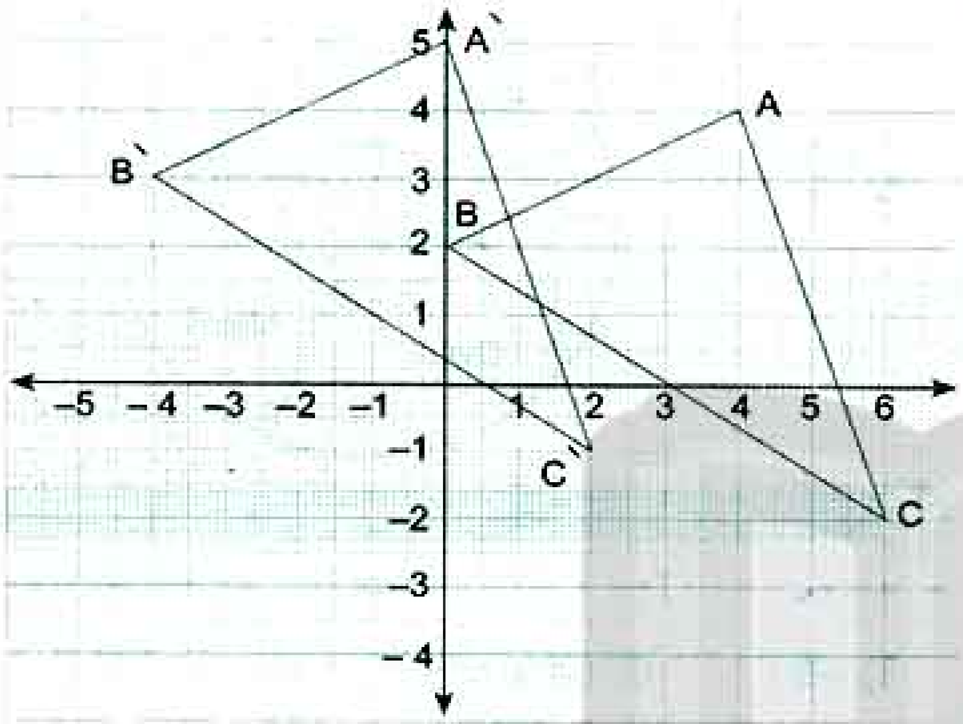
23) L.S.A. = perimeter of base × height
= 2 × (6 + 4) × 8 = 160 cm^2
The T.S.A. = L.S.A. + area of 2 bases
= 160 + 2 (6 × 4) = 160 + 48 = 208 cm^2

24) S = {1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 , 10}
1) The probability that the drawn ball has an odd number = $\frac{5}{10} = \frac{1}{2}$
2) The probability that the drawn ball has a number divisible by 3 = $\frac{3}{10}$

3) The probability that the drawn ball is an even prime number = $\frac{1}{10}$

4) The probability that the drawn ball has a number more than 6 = $\frac{4}{10} = \frac{2}{5}$

25) A` = (0 , 5), B` = (– 4 , 3) , C` = (2 , –1)



19 Suez - Maths Inspectorate

1. 1) zero 2) ⊂ 3) second 4) =
5) zero 6) 360° 7) $\mathbb{Z}^-$ 8) =
9) 6 10) 7 11) –20
12) (–3 , 0)

2. 13) $\mathbb{Z}^-$ 14) diameter 15) 2^5
16) – 4 17) height 18) 400 cm^2
19) perimeter of the rectangle 20) $\frac{8}{16} = \frac{1}{2}$

3. 21) (–7) + 19 + 17
= [(–7) + 17]+19
commutative and associative properties
= 10 + 19 = 29 closure.

22) $x - 2 \leq 3 \Longrightarrow x \leq 3 + 2$
$x \leq 5$ S.S. in $\mathbb{Z}$ = {5 , 4 , ... , –1 , –2 , ...}

23) The surface area of the circle = πr^2
= $\frac{22}{7} \times 7 \times 7 = 154$ cm^2

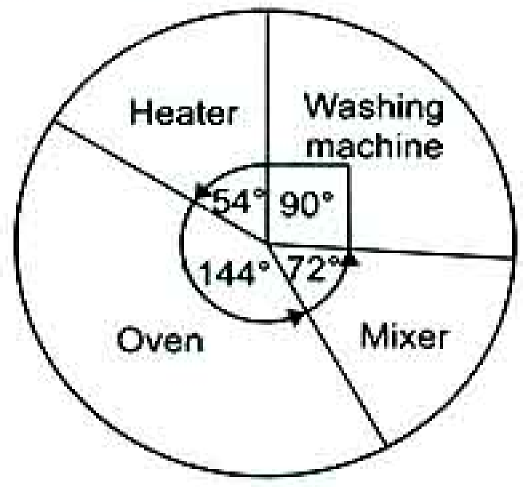
24) L.S.A. = perimeter of base × height
= 10 × 4 × 7 = 280 cm^2

25) The measure of the angle which represents the washing machine = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the heater = $\frac{15}{100} \times 360° = 54°$

The measure of the angle that represents the oven = $\frac{40}{100} \times 360° = 144°$

The measure of the angle which represents the mixer = $\frac{20}{100} \times 360° = 72°$



20 Fayoum - Directorate of Education - Mathematics Supervision

1. 1) $\mathbb{Z}$ 2) – 4 3) zero 4) 7
5) > 6) –1 7) xy 8) (1 , 0)
9) $\frac{1}{2}$ 10) $\frac{1}{4}$ 11) 2 : 3 12) 60

2. 13) third 14) {0} 15) ∅ 16) 150
17) 7 18) $6\frac{2}{3}$ cm 19) radius of the circle
20) zero ≤ the value of the probability ≤ 1

3. 21) $(-5)^{5+4-7} = (-5)^2 = 25$

22) $\frac{3}{3}(x + 2) = \frac{3}{3}$ $x + 2 = 1$
$x = 1 - 2$ then $x = -1$ the S.S. = {–1}

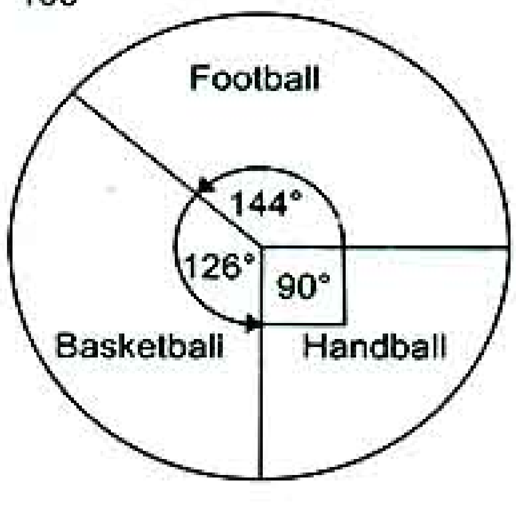
23) The area of the circle = 3.14 × $(10)^2$ = 314 cm^2

24) L.S.A. = (10 + 5) × 2 × 8 = 240 cm^2
T.S.A. = L.S.A. + area of bases
= 240 + 2 × 10 × 5 = 340 cm^2

25) The measure of the angle which represents the football = $\frac{40}{100} \times 360° = 144°$

The measure of the angle which represents basketball= $\frac{35}{100} \times 360° = 126°$

The measure of the angle which represents handball = $\frac{25}{100} \times 360° = 90°$



21 Assuit - Administration of Distinguished Language Schools

1. 1) ∈ 2) 1 3) –1 4) zero
5) –2 6) $\frac{1}{3}$ 7) 2^8 8) 5
9) $x \geq 3$ 10) 154 11) 5 12) {3}

2. 13) ∅ 14) 10 15) 25 16) (5 , 4)
17) 216 18) 5 units 19) second 20) $\frac{1}{6}$

3. 21) S.S. = {2 , 1 , 0}

22) (–116) + 190 + 116 = [(–116) + 116] + 190
commutative and associative property
= 0 + 190 the additive neutral
= 190 closure property

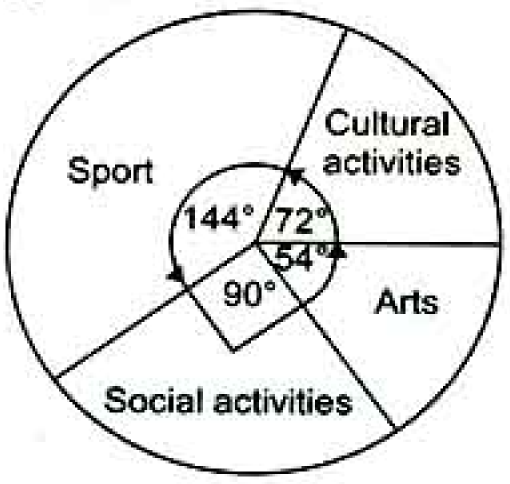
23) The area of the shaded part
= area of rectangle – area of circle
$= 12 \times 7 - \left(\frac{7}{2}\right)^2 \times \frac{22}{7}$
$= 84 - 38.5 = 45.5 \text{ cm}^2$

24) The measure of the angle which represents the cultural activities $= \frac{20}{100} \times 360° = 72°$

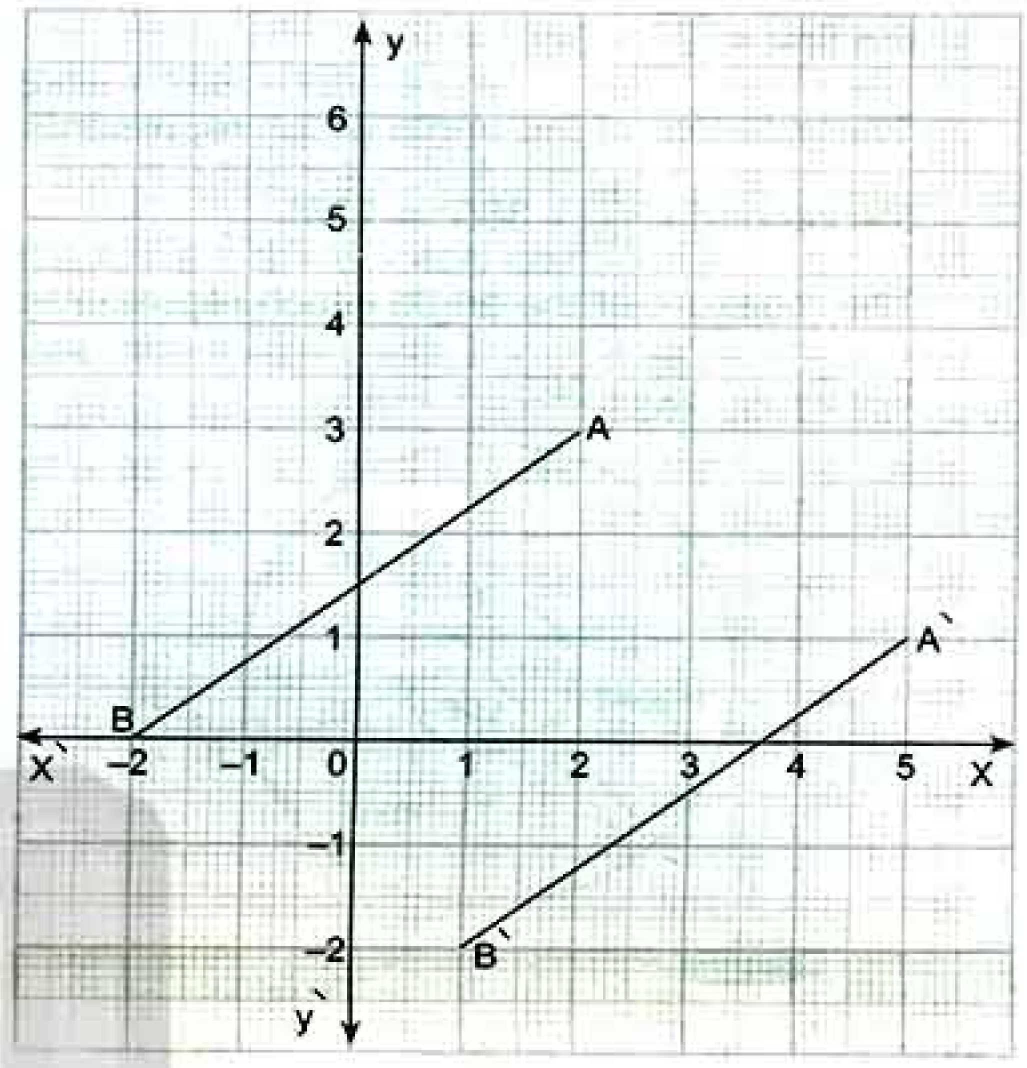
The measure of the angle which represents sport $= \frac{40}{100} \times 360° = 144°$

The measure of the angle which represents social activities $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents arts $= \frac{15}{100} \times 360° = 54°$



25)



22 Qena - Qeft Educational Directorate

1. 1) ∅ 2) 30 3) 12 4) –3
5) $\mathbb{Z}^-$ 6) 2r 7) 6 8) 144
9) (0 , 3) 10) 360° 11) 0.5 12) ⊂

2. 13) 5 14) 5 15) 2
16) 54 (117 – 17) = 54 × 100 = 5400
17) 154 cm² 18) 6
19) zero , 1 20) ⊂

3. 21) $2^{5-4} \times (-2)^{3-1} = 2 \times (-2)^2 = 2 \times 4 = 8$

22) $2x + 9 \leq 1$
$2x \leq 1 - 9 \Rightarrow 2x \leq -8$
then $x \leq -4$
1) S.S. = {– 4 , –5 , –6 , ...} $x \in \mathbb{Z}$
2) The S.S. in N = ∅

23) 1) L.S.A.= 2 × (6 + 4) × 8 = 20 × 8 = 160 cm²
2) T.S.A. = 160 + 2 × 6 × 4 = 160 + 48 = 208 cm²

24) 1) The probability of drawing a white ball
$= \frac{8}{20} = \frac{2}{5}$
2) The probability of drawing red ball
$= \frac{12}{20} = \frac{3}{5}$

25) The measure of the angle which represents

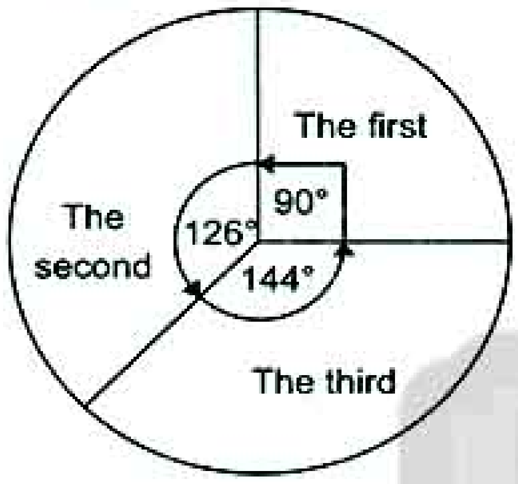
the first = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents

the second = $\frac{35}{100} \times 360° = 126°$

The measure of the angle which represents

the third = $\frac{40}{100} \times 360° = 144°$



23 Sohage - Educational Directorate City Private Schools

1. **1)** $\not\subset$ **2)** $\frac{1}{2}$ **3)** 5 **4)** zero
5) 54 **6)** (5 , 3) **7)** third **8)** zero
9) Z^+ **10)** 1 **11)** 154 **12)** $\frac{1}{6}$

2. **13)** $\frac{1}{2}$ **14)** zero **15)** 36 **16)** 4
17) 157 cm^2 **18)** (–1 , –2 , –3 , – 4)
19) N **20)** –1

3. **21)** $3x + 1 > -5$ $3x > -6 \Rightarrow x > -2$
S.S. = {–1 , 0 , 1 , 2 , ...}

22) The area of the shaded part
= area of square – area of circle
$= 10 \times 10 - \frac{22}{7} \times 5 \times 5$
$= 100 - 78\frac{4}{7} = 21\frac{3}{7}$ cm^2

23) L.S.A. = perimeter of base × height
$= (16 + 7) \times 2 \times 19 = 46 \times 19$
$= 874$ cm^2

24) $(-11) \times [5 + (-3)] = (-11) \times 5 + (-11) \times (-3)$
$= -55 + 33 = -22$

25) The measure of the angle that represents

football = $\frac{40}{100} \times 360° = 144°$

The measure of the angle that represents

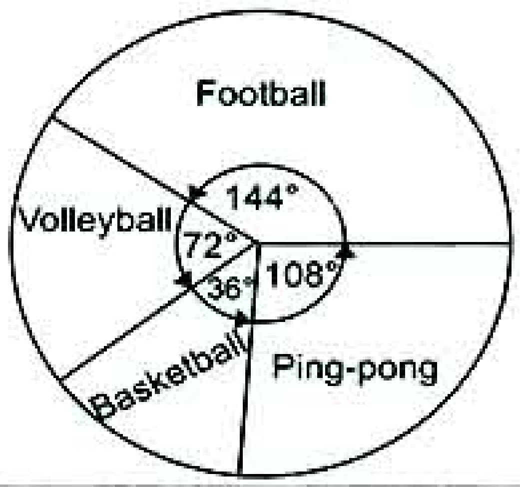
volleyball = $\frac{20}{100} \times 360° = 72°$

The measure of the angle that represents

basketball = $\frac{10}{100} \times 360° = 36°$

The measure of the angle that represents

ping pong = $\frac{30}{100} \times 360° = 108°$



24 Luxor - Educational Directorate - El-Salam Language School

1. **1)** $\frac{1}{2}$ **2)** 2 **3)** (5 , 4) **4)** second
5) 0 **6)** 40 **7)** 3 **8)** 2
9) < **10)** –7 **11)** –2 **12)** 360

2. **13)** $\varnothing$ **14)** 4 **15)** zero **16)** 3
17) height **18)** 4 **19)** (2 , 2) **20)** πr^2

3. **21)** $2^{3+4-7} = 2^0 = 1$

22) $2x + 1 \geq 5$ in Z
$2x \geq 5 - 1$ $2x \geq 4 \Rightarrow x \geq 2$
S.S. = {2 , 3 , 4 , ...}

23) The area of the circle = $\pi r^2 = \frac{22}{7} \times 7 \times 7 = 154$ cm^2

24) The measure of the angle which represents

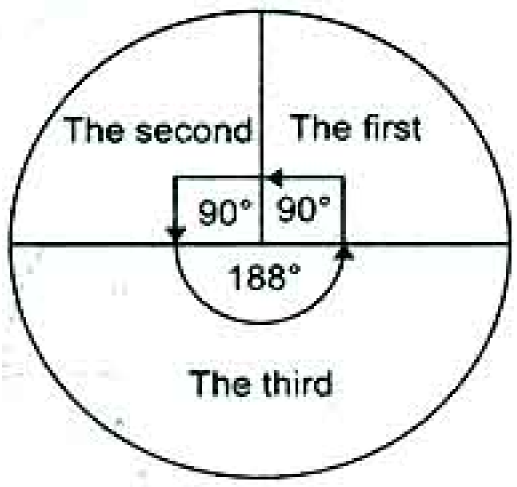
the first = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents

the second = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents

the third = $\frac{50}{100} \times 360° = 180°$



Pre-exam Final Revision

1. **1)** $\mathbb{Z}^-$ **2)** –1 **3)** –1 **4)** –12
5) $(-3)^3$ **6)** 50 **7)** A = {–3} **8)** $\mathbb{Z}$

Combined Model Exams (Selected from Previous Years Exams)

Model 1

1 Choose the correct answer:

1) $\mathbb{Z} \cap \mathbb{N} =$ .... ($\mathbb{Z}$ *or* $\mathbb{Z}^+$ *or* $\{0\}$ *or* $\mathbb{N}$)

2) The equation $x^3 + 4 = 5$ is of the .... degree.

(first *or* second *or* third *or* fourth)

3) A circle, its radius is 4 cm, then its area = ... π cm². (4 *or* 8 *or* 12 *or* 16)

4) The image of the point (– 3 , 5) by translation (x + 1, y – 2) is ....

((– 4 , 3) *or* (– 2, 3) *or* (– 2 , – 3) *or* (2 , 3))

5) If a fair die is tossed once, then the probability of getting an odd number = ...

(0 *or* 1 *or* $\frac{1}{3}$ *or* $\frac{1}{2}$)

6) $|-4| - |4| =$ .... (zero *or* 1 *or* 8 *or* –8)

7) All the following numbers satisfy the inequality $x > -3$ except ....

(zero *or* – 4 *or* –1 *or* 2)

8) The sum of edge lengths of a cube is 96 cm, then its lateral area = ... cm².

(8 *or* 64 *or* 256 *or* 384)

9) A circular sector represents $\frac{1}{3}$ of a circle, then the measure of its central angle = ... °

(90 *or* 120 *or* 180 *or* 270)

10) If $3x = -9$, then $x \in$ .... ($\mathbb{N}$ *or* $\mathbb{Z}^+$ *or* $\varnothing$ *or* $\mathbb{Z}^-$)

11) $(-1)^8 + (-1)^9 + (-1)^{zero} =$ .... (zero *or* –1 *or* 1 *or* 2)

12) The solution set of the inequality $2 \le x < 3$, where $x \in \mathbb{N}$ is ....

({zero} *or* {2} *or* {3} *or* {2 , 3})

---

2 Complete each of the following:

13) The lateral area of the cuboid = the perimeter of the base × ....

14) The greatest negative integer is ....

15) The probability of the impossible event = ...

16) $\frac{(-3)^7 \times (-3)^2}{(-3)^6} = (-3)^x$, then $x =$ ....

17) If A (– 3 , 2) and B (– 3 , – 4), then the length of $\overline{AB}$ = ... length unit(s).

18) 3 × (– 5) = (– 5) × 3 is called the .... property.

19) $\{x : x \in \mathbb{Z}, -2 < x \le 1\}$ = ... in listing method.

20) The image of the point (0 , – 2) by translation (x – 3, y + 2) is ....

3 Answer the following questions:

21) Find the result of $(4 \times 3^2 \times 3^2) - 7 \times 3$

....

22) On the coordinate plane, locate the points A (0 , 1), B (4 , 3) and C (4 ,7), then find:

a) The length of $\overline{BC}$ = ... units.

b) The image of Δ ABC by translation (0 , – 4).

....

23) Find the solution set of the inequality $x - 2 \ge 3$, where $x \in \mathbb{Z}$, then represent it on the number line.

....

....

....

24) A cuboid-shaped box with a square base, its length is 10 cm and its height is 7 cm.

Calculate the lateral area.

....

....

....

25) The following table shows the percentage of the production of a factory of house electric sets.

Kinds of sets	Washing machine	Heater	Oven	Mixer
Percentage	30%	15%	40%	15%

Represent these data by using the circular sectors.

Model 2

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or $\mathbb{Z}$ or $\mathbb{N}$)

2) $(-1)^8$ .... $(-1)^9$ ($>$ or $<$ or $=$ or $\leq$)

3) The area of the square = side length × ....

(side length or diagonal or height or width)

4) If the length of the radius of a circle is 10 cm, then its surface area equals .... cm^2.

Given that ($\pi \simeq 3.14$) (3.14 or 31.4 or 314 or 3140)

5) If $x - 2 = -4$, then $x =$ .... where $x \in \mathbb{Z}$. (2 or 4 or – 2 or – 4)

6) A circle of diameter length 10 cm, its circumference = ... π cm.

(5 or 10 or 15 or 25)

7) The probability of the impossible event = ... (zero or 1 or 0.5 or 1.2)

8) The number which satisfies the inequality $x > -2$ is .... (–1 or – 2 or – 3 or – 4)

9) The image of the point (– 3 , 4) by translation (x , y – 4) is ....

((– 3 , 0) or (– 7 , 4) or (– 3 , 8) or (–1 , 4))

10) The smallest non-negative integer number is .... (1 or 0 or –1 or 2)

11) If $x - 1 = 2$, then $x =$ .... (3 or 13 or 17 or 11)

12) The equation $3x^3 + 5 = 5$ is of the .... degree.

(first or second or third or fourth)

2 Complete each of the following:

13) The solution set of inequality $x - 1 < 0$ in $\mathbb{N}$ is ....

14) $\mathbb{Z}^+ - \mathbb{Z}^- =$ ....

15) A circle, its circumference is 88 cm, then its radius length = ... cm. $\left(\pi \simeq \frac{22}{7}\right)$

16) $\frac{2^2 \times 2^5}{2^3} =$ ....

17) A cube of volume 1000 cm^3, its edge length is .... cm.

18) Having A (– 2 , 1) and B (3 , 1), then the length of $\overline{AB}$ = ... length unit(s).

19) The probability of the certain event = ...

20) If the area of one face of a cube is 9 cm^2, then its total area = ... cm^2.

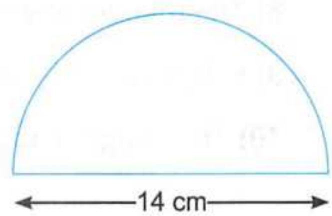
3 Answer the following questions:

21) **Simplify:** $\frac{7^5 \times 7}{7^4}$ (Show the steps.)

....

22) On the Cartesian coordinate plane, **draw** ΔABC where A (1 , 1), B (4 , 1) and C (4 , 4), then **find** the image of ΔABC by translation (1 , –2).

23) **Find** the area of the given figure. $\left(\pi \simeq \frac{22}{7}\right)$



....

....

....

24) **Find the solution set of each of the following:**

a) $2x + 9 = 13 \quad (x \in \mathbb{Z})$ **b)** $x - 1 < 2 \quad (x \in \mathbb{N})$

25) The following table shows the percentage of production of a factory of home electric appliances.

Kinds of appliances	Washing machine	Heater	Oven	Mixer
Percentage	25%	25%	20%	30%

Represent these data by using the circular sectors.

....

....

Model 3

1 Choose the correct answer:

1) When tossing a coin once, then the probability of getting a head is ....

(0 *or* 1 *or* 0.5)

2) If the area of one face of a cube is 9 cm^2, then its total surface area is .... cm^2.

(36 *or* 54 *or* 81)

3) $\mathbb{Z}^+ \cap \mathbb{Z}^-$ = ... ($\mathbb{Z}$ *or* $\varnothing$ *or* $\mathbb{Z}^-$)

4) The measure of the central angle of the circular sector which represents $\frac{1}{12}$ from the area of the circle = ... (90° *or* 60° *or* 30°)

5) $(-1)^8 + (-1)^9 + (-1)^{zero}$ = ... (–1 *or* 1 *or* 0)

6) If a die is tossed once, then the probability of getting a prime number = ...

$\left(\frac{1}{3} \text{ or } \frac{1}{2} \text{ or } 1\right)$

7) If $4x = 24$, $x \in \mathbb{Z}$, then x = ... (12 *or* 24 *or* 6)

8) The multiplicative neutral element in $\mathbb{Z}$ is .... (0 *or* 1 *or* 2)

9) $|-5| + 3$ .... $\mathbb{Z}$ ($\in$ *or* $\subset$ *or* $\notin$)

10) The image of the point (–1 , 2) by translation (– 2 , 3) is ....

((0 , 5) *or* (1 , 3) *or* (– 3 , 5))

11) If the diameter length of a circle is 20 cm, then its area = ... cm^2. ($\pi \simeq 3.14$)

(314 *or* 3.14 *or* 0.314)

12) $5 \times |-4|$ = ... (20 *or* – 20 *or* 9)

2 Complete each of the following:

13) The probability of getting a tail when tossing a coin once = ...

14) $(-3) + |-3|$ = ...

15) $\frac{6^4 \times 6^5}{6^7}$ = ...

16) If X = (– 2 , 1), Y = (– 2 , 5), then the length of $\overline{XY}$ = ... length units.

17) The area of the opposite figure = ... ($\pi \simeq 3.14$)



18) The numbers lying between – 5 and 0 are ....

19) $\mathbb{Z}^+ \cup \{0\}$ = ...

20) The greatest negative integer is ....

3 Answer the following questions:

21) Find the solution set of the following inequality:

$3x - 2 < 7$ ($x \in \mathbb{N}$)

....

....

22) Use the properties of addition in $\mathbb{Z}$ to find the result of:

(–116) + 190 + 116 (State the property used in each step.)

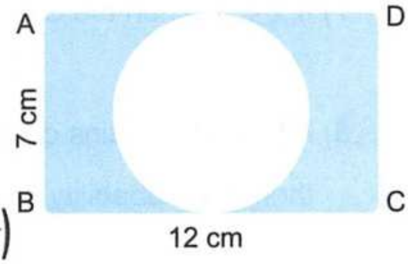
....

....

23) In the opposite figure:

ABCD is a rectangle, its length 12 cm and its width 7 cm. A circle is drawn to touch the sides $\overline{AD}$ and $\overline{BC}$.

Calculate the area of the shaded part. $\left(\text{where } \pi \simeq \frac{22}{7}\right)$



....

....

24) The following table shows the number of students participating in school activities.

Activity	Culture	Sports	Social	Art
Percentage	20%	40%	25%	15%

Represent these data by using the circular sectors.

....

....

....

....

25) On a coordinate plane, draw $\overline{AB}$ where A (2 , 3), B (– 2 , 0), then find its image by translation (x + 3 , y – 2).

....

....

Model 4

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .... ($\mathbb{Z}^+$ **or** $\{0\}$ **or** $\mathbb{Z}^-$ **or** 0)

2) The equation $2x^3 = 4$ is of the .... degree. (1^{st} **or** 2^{nd} **or** 3^{rd} **or** 4^{th})

3) The image of the point A (– 4 , 3) by translation (–1 , – 4) is ....

((– 5 , 7) **or** (– 5 , –1) **or** (– 7 , 3) **or** (– 3 , –1))

4) Two consecutive natural numbers, the smaller one is x, then the greater is ....

($2x$ **or** $x + 1$ **or** $2x + 1$ **or** $x - 1$)

5) $(3)^0 + (-3)^0 =$ .... (6 **or** 0 **or** 1 **or** 2)

6) A circle of diameter 8 cm, its area = ... cm^2. (9 π **or** 8 π **or** 16 π **or** 64 π)

7) If $x \in \mathbb{N}$, then the S.S. of the inequality $-x > 3$ is ....

($\{4 , 5 , ...\}$ **or** $\{3\}$ **or** $\{-4 , -5 , -6 ....\}$ **or** $\varnothing$)

8) A basket contains cards numbered from 1 to 20. If a card is drawn randomly, then the probability that the number written on it is divisible by 6 = ...

($\frac{3}{20}$ **or** $\frac{4}{20}$ **or** $\frac{5}{20}$ **or** $\frac{6}{20}$)

9) The additive inverse of (– 5) is .... (–10 **or** $\frac{1}{-5}$ **or** $|-5|$ **or** 0)

10) The probability of success of a student is 70%, then the probability of his failure is .... (0.7 **or** 0.07 **or** 0.3 **or** 0.03)

11) The area of one face of the cube = ... its total area. ($\frac{1}{2}$ **or** $\frac{1}{8}$ **or** $\frac{1}{6}$ **or** $\frac{1}{4}$)

12) The S.S. of the inequality $-2x < 0$ in $\mathbb{Z}$ is .... ($\mathbb{N}$ **or** $\mathbb{Z}$ **or** $\varnothing$ **or** $\mathbb{Z}^+$)

2 Complete each of the following:

13) $3 + |-3| =$ ....

14) The perimeter of the base of a cuboid is 10 cm and its height is 4 cm, then its lateral area = ...

15) The probability of the sure event = ...

16) The sum of measures of all accumulated angles of the sectors at the centre of a circle = ...

17) The area of the circle = ... × π.

18) If the total area of a cube is 150 cm^2, then the length of its edge = ... cm.

19) $\mathbb{Z}^+ \cup \{0\}$ = ...

20) If $3x = 9$, then x = ...

3 Answer the following questions:

21) **Use** the distribution property to find $3 \times (-2) + 3 \times 5$

....

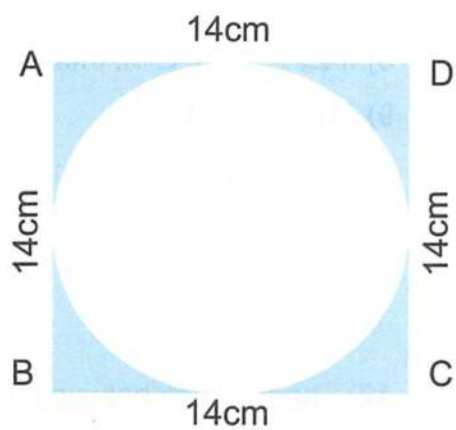
22) **Find** the solution set in $\mathbb{N}$: $3x - 2 = -17$

....

23) The sum of edge lengths of a cube is 144 cm. **Find** its lateral area and its total area.

....

24) **Find** the area of the shaded part. $\left(\pi \simeq \frac{22}{7}\right)$



....

....

....

....

....

....

....

....

25) The following table shows the number of students participating in school activities.

Activities	Cultural	Sports	Social	Arts
Percentage	25%	50%	15%	10%

Represent these data by a pie chart.

....

....

....

Model 5

1 Choose the correct answer:

1) $\mathbb{Z} - \mathbb{N} =$ .... ($\mathbb{Z}^+$ or $\mathbb{Z}^-$ or zero or $\mathbb{N}$)

2) The probability of the certain event = ... (zero or 1 or 5 or 12)

3) The image of the point (3 , 5) by translation (2 , –1) is ....

((5 , 6) or (5 , 4) or (1 , 4) or (1 , 6))

4) The sum of the measures of all the central angles of the sectors around the centre of the circle is .... (90° or 80° or 270° or 360°)

5) If $x = |-2|$, y = – 3, then xy = ... (– 5 or 5 or – 6 or 6)

6) The degree of the equation $x^2 + 3 = 4$ is of the .... degree.

(first or second or third or fourth)

7) If the area of one face of a cube is 25 cm², then its lateral area = ... cm².

(150 or 20 or 25 or 100)

8) If $2x = 10$, $x \in \mathbb{N}$, then x = ... (3 or 4 or 5 or 6)

9) $(3)^{zero} + (-3)^{zero}$ = ... (6 or 0 or 1 or 2)

10) All the following numbers satisfy the inequality $x > -3$ except ....

(0 or – 4 or –1 or – 2)

11) A circle, its diameter length is 6 cm, then its surface area = ... cm².

(3 π or 6 π or 9 π or 36 π)

12) The distance between two points A (– 3 , 2) and B (2 , 2) = ... length units.

(– 5 or 2 or 5 or 1)

---

2 Complete each of the following:

13) The image of the point (–1 , 4) by translation (x + 1, y – 3) is ....

14) $\mathbb{Z}^+ \cap \mathbb{Z}^-$ = ...

15) A fair die is thrown once, then the probability of getting the number 5 is ....

16) The lateral area of the cuboid = the perimeter of a base × ....

17) $\frac{(-2)^7 \times (-2)^5}{(-2)^{10}}$ = ...

18) If the sum of edge lengths of a cube = 48 cm, then its lateral area = ... cm².

19) If $x = -2$, $y = |4|$, then $xy =$ ....

20) The cuboid of lateral area 120 cm^2 and the perimeter base 20 cm, its height = ... cm.

3 Answer the following questions:

21) Find the solution set in $\mathbb{Z}$ of the equation $2x + 11 = 3$

....

22) Use the properties of addition and multiplication to find the result of:

$37 \times 17 + 37 \times (-17)$

....

23) A carpet in the shape of a circle of radius length 3.5 m. If the price of one square metre of this carpet is 100 pounds, find the price of the whole carpet. $\left(\pi \simeq \frac{22}{7}\right)$

....

24) Find the total area of a cuboid box of dimensions 3 cm, 2 cm and 6 cm.

....

25) The following table shows the percentages of a number of students participating in some favourite school activities:

Activities	Sports	Reading	Music
Percentage	25%	35%	40%

Represent these data by a pie chart.

....

....

Model 9

(1) 10	(2) 90°	(3) >	(4) -2
(5) $\frac{1}{2}$	(6) >	(7) 0.35	(8) 7
(9) -1	(10) 6	(11) 7	(12) $x \geq 3$
(13) (5, 4)	(14) -6	(15) 5	

Model 10

(1) second	(2) 360°	(3) 1	(4) 100
(5) $\mathbb{Z}$	(6) 2:3	(7) 154	(8) 40
(9) (-1, -1)	(10) -2	(11) $2 \times 3 - 7$	(12) 60°
(13) $\notin$	(14) 4	(15) 0.5	

Combined model exams (Selected from Previous year Exams)

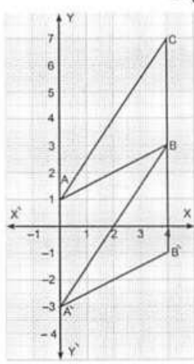
Model 1

1. 1) $\mathbb{N}$ 2) third 3) 16 4) (–2 , 3)
5) $\frac{1}{2}$ 6) 0 7) – 4 8) 256
9) 120 10) $\mathbb{Z}^-$ 11) 1 12) {2}

2. 13) height 14) –1 15) zero
16) 3 17) 6 18) commutative
19) {–1 , 0 , 1} 20) (–3 , 0)

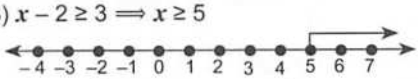
3. 21) $(4 \times 3^2 \times 3^2) - 7 \times 3 = 4 \times 81 - 21$
$= 324 - 21 = 303$

22)



a) 4 b) A` = (0 , –3), B` =(4 , –1)
C` = (4 , 3)
Δ A`B`B is the image of Δ ABC

23) $x - 2 \geq 3 \Longrightarrow x \geq 5$



S.S. = {5 , 6 , 7 , ...}

24) Lateral area of the cuboid
= perimeter of base × height
= 10 × 4 × 7 = 280 cm^2

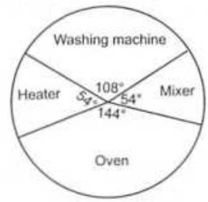
25) The measure of the angle which represents the washing machine
$= \frac{30}{100} \times 360° = 108°$

The measure of the angle which represents the heater $= \frac{15}{100} \times 360° = 54°$

The measure of the angle which represents the oven
$= \frac{40}{100} \times 360 = 144°$

The measure of the angle which represents the mixer
$= \frac{15}{100} \times 360 = 54°$

that can be represented by:



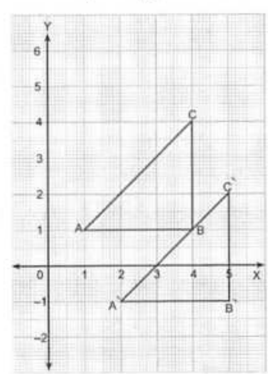
Model 2

1. 1) $\mathbb{Z}^-$ 2) > 3) side length 4) 314
5) –2 6) 10 7) zero 8) –1
9) (–3 , 0) 10) 0 11) 3 12) third

2. 13) {0} 14) $\mathbb{Z}^+$ 15) 14cm 16) $2^4 = 16$
17) 10 cm 18) 5 19) 1 20) 54

3. 21) $7^{5+1-4} = 7^2 = 49$

22)



23) The area of the figure $= \frac{1}{2} \times \frac{22}{7} \times (7)^2 = 77$ cm^2

24) **a)** $2x + 9 = 13$ $2x = 13 - 9$
$\frac{2x}{2} = \frac{4}{2}$, then $x = 2$ The S.S. = {2}

b) $x - 1 < 2$ $x < 2 + 1$
,then $x < 3$ S.S. in $\mathbb{N}$ = {2 , 1 , 0}

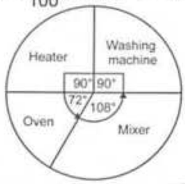
25) The measure of the angle of the sector which represents washing machine $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents the heater $= \frac{25}{100} \times 360° = 90°$

The measure of the angle which represents

the oven = $\frac{20}{100} \times 360° = 72°$

The measure of the angle which represents the mixer = $\frac{30}{100} \times 360° = 108°$



Model 3

1. 1) 0.5 2) 54 3) $\varnothing$ 4) 30°
5) 1 6) $\frac{1}{2}$ 7) 6 8) 1
9) $\in$ 10) (−3 , 5) 11) 314 12) 20

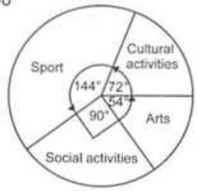
2. 13) $\frac{1}{2}$ 14) zero 15) 36 16) 4
17) 157 cm^2 18) (−1 , −2 , −3 , − 4)
19) $\mathbb{N}$ 20) −1

3. 21) S.S. = $\{2 , 1 , 0\}$

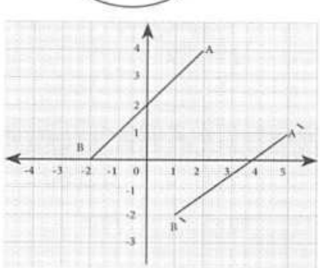
22) (−116) + 190 + 116 = [(−116) + 116] + 190
(commutative and associative property)
= 0 + 190 (the additive neutral)
= 190 (closure property)

23) The area of the shaded part
= area of rectangle − area of circle
= $12 \times 7 - \left(\frac{7}{2}\right)^2 \times \frac{22}{7}$
= 84 − 38.5 = 45.5 cm^2

24) The measure of the angle which represents the cultural activities = $\frac{20}{100} \times 360° = 72°$
The measure of the angle which represents sport = $\frac{40}{100} \times 360° = 144°$
The measure of the angle which represents social activities = $\frac{25}{100} \times 360° = 90°$
The measure of the angle which represents arts = $\frac{15}{100} \times 360° = 54°$



25)



Model 4

1. 1) $\mathbb{Z}^-$ 2) (3^{rd}) 3) (−5 , −1) 4) $x + 1$
5) 2 6) 16 π 7) $\varnothing$ 8) $\frac{3}{20}$
9) |−5| 10) 0.3 11) $\frac{1}{6}$ 12) $\mathbb{Z}^+$

2. 13) 6 14) 40 cm^2 15)1 16) 360
17) r^2 18) 5 19) $\mathbb{N}$ 20) 3

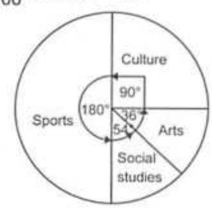
3. 21) 3 × [(−2) + 5] = 3 × 3 = 9

22) $3x = -15$ $x = -5$ S.S. = $\varnothing$

23) Lateral area = 4 × 12 × 12 = 576 cm^2
total area = 6 × 12 × 12 = 864 cm^2

24) Shaded part = area of square − area of circle
= $(14 \times 14) - \left(\frac{22}{7} \times 7 \times 7\right)$
= 196 − 154 = 42 cm^2

25) The measure of central angle which represents:
Culture = $\frac{25}{100} \times 360 = 90°$
Sports = $\frac{50}{100} \times 360 = 180°$
Social studies = $\frac{15}{100} \times 360 = 54°$
Arts = $\frac{10}{100} \times 360 = 36°$



Model 5

1. 1) $\mathbb{Z}^-$ 2) 1 3) (5 , 4) 4) 360°
5) −6 6) second 7) 100 8) 5
9) 2 10) − 4 11) 9π 12) 5

2. 13) (0 , 1) 14) $\varnothing$ 15) $\frac{1}{6}$ 16) height
17) 4 18) 64 19) −8 20) 6

3. 21) $2x + 11 = 3 \Longrightarrow 2x = 3 - 11$
Then $\frac{2x}{2} = \frac{-8}{2}$ so $x = -4$
The S.S. = $\{-4\}$

22) 37 × 17 + 37 × (−17)
= 37 × [17 + (−17)] = 37 × 0 = 0

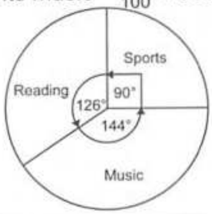
23) Area of the carpet = $\pi r^2 = \frac{22}{7} \times (3.5)^2 = 38.5\ m^2$
The price of the carpet = 38.5 × 100
= 3850 pounds

24) The total area of the cuboid
= lateral area + area of two bases
= (3 + 2) × 2 × 6 + 2 × 3 × 2
= 60 + 12 = 72 cm^2

25) The measure of the angle of the sector that represents sports = $\frac{25}{100} \times 360° = 90°$

The measure of the angle of the sector that represents reading = $\frac{35}{100} \times 360° = 126°$

The measure of the angle of the sector that represents music = $\frac{40}{100} \times 360° = 144°$



Combined Model Exams (Selected from 2019 Governorate Exams)

1 Cairo – El-Sahel Educational Zone

1. 1) ∅ 2) $-(3)^2$ 3) second 4) $\frac{1}{6}$
5) –24 6) 4 7) 25 8) 1
9) (–2 , –7) 10) 2^5 11) 0.2 12) {4}

2. 13) 54 14) $\mathbb{Z}^- \cup \{0\}$
15) (–1 , 2) 16) 18
17) 360 18) 50 19) $x < -3$ 20) 10

3. 21) $3x - 7 = 11$, $x \in \mathbb{Z}$ $3x = 11 + 7 = 18$
$\frac{3x}{3} = \frac{18}{3} \Longrightarrow x = 6$ S.S. = {6}

22) The area of a circle = πr^2
$= \frac{22}{7} \times 7 \times 7 = 154$ cm^2
The area of each sector = 154 ÷ 7 = 22 cm^2

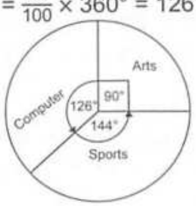
23) $x - 2 \le 3$ where $x \in \mathbb{N}$
$x \le 3 + 2 \Longrightarrow x \le 5$
S.S. = {5 , 4 , 3 , 2 , 1 , 0}

24) The side length of the cube = 28 ÷ 4 = 7 cm.
a) Lateral area = 4 S^2 = 4 × 7 × 7 = 196 cm^2
b) Total area = 6 S^2 = 6 × 7 × 7 = 294 cm^2

25) The measure of the angle which represents arts = $\frac{25}{100} \times 360° = 90°$

The measure of the angle which represents sports = $\frac{40}{100} \times 360° = 144°$

The measure of the angle which represents computer = $\frac{35}{100} \times 360° = 126°$



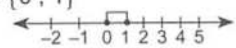
2 Giza - 6 October Directorate

1. 1) –1 2) ∉ 3) 2 4) (–3 , 0)
5) $\mathbb{Z}$ 6) 216 7) $\frac{1}{6}$ 8) 314
9) 3 10) 14 11) 10 12) 180°

2. 13) zero 14) ∅ 15) 3200 16) 96
17) the centre 18) {3 , 2 , 1 , 0}
19) {–3} 20) 2(L + w) × h

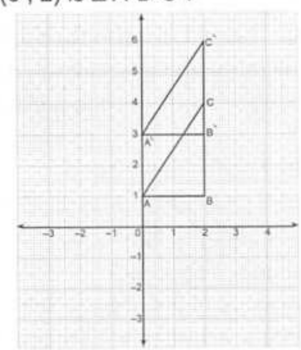
3. 21) **a** $(-5) \times [2] = -10$ **b** $7^{4+5-7} = 7^2 = 49$

22) $2x - 3 < 1$ where $x \in \mathbb{N}$
$2x < 1 + 3$ $\frac{2x}{2} < \frac{4}{2} \Longrightarrow x < 2$
S.S. = {0 , 1}



23) $x + 4 > 5$ $x \in \mathbb{Z}$
$x > 5 - 4 \Longrightarrow x > 1$ S.S. = {2 , 3 , ...}

24) **a** The length of BC = 3 length units.
b The image of Δ ABC by translation (0 , 2) is Δ A\`B\`C\`.

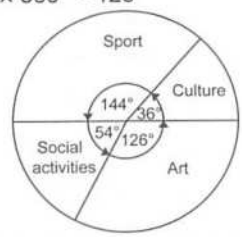


25) The measure of the angle which represents culture = $\frac{10}{100} \times 360° = 36°$

The measure of the angle which represents sport = $\frac{40}{100} \times 360° = 144°$

The measure of the angle which represents social activities = $\frac{15}{100} \times 360° = 54°$

The measure of the angle which represents art = $\frac{35}{100} \times 360° = 126°$



3 Alexandria - Mathematics Inspection

1. 1) $x = 8$ 2) $\frac{5}{6}$ 3) 3000 4) 5
5) {–3} 6) $\frac{r^2}{2}$ 7) 3 8) (5 , –1)